



Endangered Species Biological Assessment Report

This report is to present the methods used and summarize the results of the species survey of SR 87 Connector Project from US 90 to SR 87 N in Milton.

Santa Rosa County Florida

Financial Project ID #'s
41674832201
41674832202
41674842201
41674842202
41674842290

Federal Aid Project #'s
SFT1 296 R
S129 348 R
TCSP 033 U
T129 348 R
T129 348 R

September 2012
updated January 2014

Prepared For:
Florida Department of Transportation
District Three

Prepared by:
Ecological Resource Consultants
100 Amar Place
Panama City Beach, Florida 32413
Phone: 850.230.1882
Fax: 850.230.1883





Ecological Resource
Consultants, Inc.

Final Report:

Endangered Species Biological Assessment Report

Project: SR 87 Connector PD&E

<u>Financial Project ID #'s</u>	<u>Federal Aid Project #'s</u>
41674832201	SFT1 296 R
41674832202	S129 348 R
41674842201	TCSP 033 U
41674842202	T129 348 R
41674842290	T129 348 R

ERC #: 09-143

Prepared for:

Florida Department of Transportation
Peggy Kelley, Project Manager
P.O. Box 607
Chipley, FL 32428

Prepared by:

Ecological Resource Consultants, Inc.
Corporate Office
100 Amar Place
Panama City Beach, FL 32413

Contact:

Martin Gawronski
Vice President
Tel 850-230-1882

Tallahassee
410 E. 6th Ave.
Tallahassee, FL 32303
tel 850-224-0041
fax 850-224-0017

Panama City Beach
100 Amar Place
Panama City Beach, FL 32413
tel 850-230-1882
fax 850-230-1883



EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a PD&E study to evaluate potential alignments that would connect SR 87S at US 90 east of Milton to SR 87N north of Milton. This project is needed to provide for a new roadway facility linking SR 87S with SR 87N. This will serve as an alternative to the existing shared facility of SR 87 and US 90, which is a constrained facility that is currently operating at a failing level of service (LOS F).

In accordance with Federal regulations and the PD&E Manual, a survey of Threatened and Endangered species, and Species of Special Concern (T&E species), was conducted for Alternative Alignments 1 and 2 of the proposed SR 87 Connector PD&E area. The regulatory agencies and statutes providing authority for T&E species protection and investigations are described. A general site description is given, including descriptions of the major plant communities and their relationship to the T&E species observed. A methodology for research and field surveys to investigate the occurrence of T&E species is presented, and the results of these surveys are reported and discussed in this Endangered Species Biological Assessment (ESBA).

1. Federally Listed Wildlife Species

Gulf Sturgeon (*Acipenser oxyrinchus desotoi*)

The project “may affect” the Gulf sturgeon, but, due to the proposed bridge over the Blackwater River and its floodplain wetlands, the project is not likely to adversely modify the Gulf sturgeon critical habitat.

Reticulated Flatwoods Salamander (*Ambystoma bishopi*)

The project “may affect” the reticulated flatwoods salamander, but, due to the proposed bridge and the location of the alignments in the most disturbed portion of the critical habitat, the project is not likely to adversely modify the critical habitat of the reticulated flatwoods salamander.

Eastern Indigo Snake (*Drymarchon corais couperi*)

Due to the implementation of the USFWS measures for the Eastern indigo snake, the project “may affect, but is not likely to adversely affect” the eastern indigo snake.

Wood Stork (*Mycteria americana*)

The project will have “no effect” on the wood stork.

Red-cockaded Woodpecker (*Picoides borealis*)

The project will have “no effect” on the red-cockaded woodpecker.

Freshwater mussels

The project will have “no effect” on freshwater mussel species.



Florida Manatee (*Trichechus manatus latirostris*)

Due to the implementation of the USFWS measures for the Florida manatee, the project “may affect, but is not likely to adversely affect” the Florida manatee.

2. State Listed Wildlife

Gopher Tortoise (*Gopherus polyphemus*)

Since tortoises and commensal species will be relocated to suitable habitat, the project “may affect, but is not likely to adversely affect” the gopher tortoise and gopher frog.

Southeastern American Kestrel (*Falco sparverius paulus*)

The project will have “no effect” on the kestrel.

Wading birds

Because of the potential for wetland impacts, the project “may affect, but is not likely to adversely affect” wading birds.

Florida Black Bear (*Ursus americanus floridanus*)

There is an abundance of habitat adjacent to the alignment areas to serve as potential habitat for the black bear and therefore the project will have “no effect” on this species.

3. State Listed Plant Species

State-listed plants likely exist in the project area since suitable habitat areas occur based on habitat mapping. Pedestrian searches of these habitat areas were conducted for each state listed species. The Florida Fish and Wildlife Conservation Commission (FWC), Florida Department of Agriculture and Consumer Services (DACS) and Endangered Plant Advisory Council (EDAC) are being notified that FDOT as owner is allowing for salvaging by others of affected protected plants on this project prior to construction in accordance with state law (Chapter 581.185, Florida Statutes), pending their receipt of the appropriate permits.

It appears that protected plants potentially occurring within the project corridor will be impacted and may be salvaged in accordance with state law (Chapter 581.185, F.S.).

4. Other Species (not listed)

Bald Eagle (*Haliaeetus leucocephalus*)

The project will have “no effect” on the bald eagle.



5. Commitments

Both alignments traverse critical habitat of the Gulf sturgeon and the reticulated flatwoods salamander. ERC has coordinated with USFWS, which recommends that Best Management Practices (BMPs) are used during the construction to minimize direct or indirect / cumulative impacts to T&E species. Specific measures to avoid and minimize direct, indirect, and cumulative impacts to species, which have been approved in consultation with FDOT, include:

- The Blackwater River will be bridged and construction will be conducted during non-spawning periods to avoid direct impacts to both Gulf sturgeon critical habitat and individuals.
- Gulf sturgeon guidelines for in-water work will be followed to minimize construction related impacts.
- The pond areas within the flatwoods salamander critical habitat unit will be bridged to reduce direct impacts to both the critical habitat unit and individuals.
- Secondary impacts to the reticulated flatwoods salamander habitat will be minimized by incorporating adequate stormwater treatment from the elevated roadways and treating stormwater in upland areas that are already disturbed by silviculture.
- Eastern indigo snake protective measures will be followed during construction to avoid impacts.
- Manatee protective measures will be followed during construction to avoid impacts.

There were twelve state T&E plant species and one state threatened animal species observed within alignments 1 and 2. There were no federally listed T&E species observed.

- Gopher tortoise permitting will be conducted by FDOT prior to construction.



TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	i
LIST OF FIGURES	v
LIST OF TABLES	vi
APPENDICES.....	vi
I. INTRODUCTION	1
A. GENERAL PURPOSE	1
B. LOCATION.....	1
II. PURPOSE AND NEED.....	1
III. METHODOLOGY	4
IV. RESULTS AND DISCUSSION	7
A. RESULTS	7
1. Soils	7
2. Plant Communities.....	8
3. T&E Species.....	13
a. Animals	13
b. Plants	16
4. Designated Critical Habitat	18
a. Reticulated Flatwoods Salamander	19
b. Gulf Sturgeon.....	20
c. Agency Coordination.....	22
B. DISCUSSION	23
V. ALTERNATIVES EVALUATION	25
A. ALTERNATIVES SUMMARY	25
B. NO-BUILD ALTERNATIVE	26
C. ALTERNATIVES EVALUATION.....	26
D. DIRECT IMPACTS	27
E. INDIRECT AND CUMULATIVE IMPACTS.....	29
1. Indirect Impacts	29
2. Cumulative Impacts	30
VI. CONCLUSION	32
A. OBSERVED SPECIES.....	32
B. AVOIDANCE, MINIMIZATION, COMPENSATION, AND COMMITMENTS	32
C. SPECIES DETERMINATION OF EFFECT	33
VII. REFERENCES	36



LIST OF FIGURES

Figure 1.	Location Map: SR 87 Alignments
Figure 2.	FNAI Element Occurrences Map
Figure 3.	NRCS Soils
Figure 4.	T&E Species Map
Figure 4.1	T&E Species Map Key
Figure 4.2.1	T&E Species Map 1
Figure 4.2.2	T&E Species Map 2
Figure 4.2.3	T&E Species Map 3
Figure 4.2.4	T&E Species Map 4
Figure 4.2.5	T&E Species Map 5
Figure 4.2.6	T&E Species Map 6
Figure 4.2.7	T&E Species Map 7
Figure 4.2.8	T&E Species Map 8
Figure 4.2.9	T&E Species Map 9
Figure 4.2.10	T&E Species Map 10
Figure 4.2.11	T&E Species Map 11
Figure 4.2.12	T&E Species Map 12
Figure 4.2.13	T&E Species Map 13
Figure 5.	Transect Location Map
Figure 6.	Critical Habitat Map
Figure 7.	Black Bear Road Kills
Figure 8.	Bald Eagle Nest Data



LIST OF TABLES

Table 1. Search List of Federal and State T&E Plant and Animal Species Potentially Occurring in Santa Rosa County

Table 2. List of all Federal and State T&E Plant and Animal Species Observed within SR 87 Alignments 1 and 2 Areas During the Field Survey September 2011

APPENDICES

- Appendix A. Alignment 1 & 2 Species Photographs
- Appendix B. Construction Special Provisions – Sturgeon Protection Guidelines
- Appendix C. Standard Manatee Conditions for In-water Work
- Appendix D. Standard Eastern Indigo Snake Conditions
- Appendix E. Flatwoods Salamander Bridge Area
- Appendix F. Flatwoods Salamander Desktop Analysis
- Appendix G. Essential Fish Habitat Memo
- Appendix H. USFWS Correspondence & Meeting Minutes



I. INTRODUCTION

A. General Purpose

The Florida Department of Transportation is conducting a study to evaluate potential alternative alignments that would connect SR 87S at US 90 east of Milton to SR 87N in Milton or north of Milton. The primary objectives in the extension of SR 87S are to facilitate north/south traffic movement to more effectively serve freight movement and to provide for a more direct hurricane evacuation route from the coast to areas north in Alabama. It also is the intent to reduce congestion in the City of Milton, and to alleviate travel demand on the section of US 90 currently shared by SR 87.

The primary need for this new corridor is to provide additional capacity, and to improve regional connectivity by providing a more direct route from areas of high growth in northern Santa Rosa County, such as the Berryhill Road area, to I-10 and to areas to the south such as Navarre and the Highway 98 corridor. Likewise, access will be improved to and from I-10 for the Whiting Field U.S. Naval Air Station, and the County's Joint Use Planning Area near Whiting Field. It is also anticipated that this new roadway facility would provide relief to Ward Basin Road and its intersection with US 90 and much needed relief to the US 90 Blackwater Bridge.

The purpose of this ESBA report is to present the methods used and summarize the results of the survey conducted in September 2011 of state and federally regulated biological taxa by ERC. Regulated taxa include all T&E plant and animal species, and all species of special concern (hereafter T&E species). The survey is required as a component of the FDOT Project Development and Environment (PD&E) Manual, part 2, Chapter 27.

B. Location

The alignments are located north and east of Milton, Santa Rosa County, Florida (Figure 1). Alignment 1 is approximately 7 miles long and Alignment 2 is approximately 8 miles long. Each alignment extends from SR 90 north, crossing the Blackwater River, and then curves west towards SR 87N.

II. PURPOSE AND NEED

The objective of the PD&E Study process is to provide the documentation necessary to determine the best route for the SR 87 Connector. The purpose of this new road is to provide a direct route for traffic on SR 87 in the south end of Santa Rosa County to access SR 87 in the north and to provide more direct access from I-10 to the Naval Air Station, Whiting Field. Factors under consideration include transportation needs, environmental issues, engineering, and cost. The process includes the preparation of a series of reports that document the research and analysis being conducted for these factors.



Generally, the PD&E process involves the following steps: (1) the establishment of project need; (2) the gathering and analysis of detailed information regarding the environmental features of the study area; (3) the development of several alternatives for meeting the project need; and (4) the selection of a Preferred Alternative. During this process communication with the public is very important. This is accomplished through public meetings, interaction with various agencies, communication with elected officials, and meetings with local business owners.

A. Emergency Evacuation

SR 87 serves as a vital evacuation route for northbound traffic destined for I-65 in Alabama. During times of hurricane force winds, both the Escambia Bay Bridge and the Garcon Point Bridge close leaving SR 87 north to the interstate and beyond as the only access out of the beach areas like Gulf Breeze and Navarre. SR 87 is also the only access into the area for Emergency First Responders; however, with a portion of the current alignment travelling along a congested portion of US 90, through historic downtown Milton, it cannot function as a contiguous roadway. The project will address future projected deficiencies on an established emergency hurricane evacuation route.

B. Multi-modalism

The project will also address the need for greater bicycle and sidewalk connectivity within the County with possible connections with the Blackwater Heritage Trail, enabling area residents' direct access. Unfortunately, Escambia County Area Transit does not provide service to this area of Santa Rosa County; however, in the future if such services were to be provided, the proposed facility would offer greater opportunities in regional network systems for transit. Finally, connection to the proposed Whiting Aviation Park will be considered. This park will be located on the east side of Whiting Field and will include a 6,000 foot runway currently under a joint use agreement with the Naval Base.

C. Social Demand and Economic Development

Santa Rosa County is not only a bedroom community to the greater Pensacola area, but in its own right, has also been experiencing considerable growth over the past year. This growth has spurred the need for an improved roadway network. In addition, major traffic generators in the area such as new residential developments, the Santa Rosa Criminal Justice Center, the Santa Rosa Corrections Facility, the Whiting Field U.S. Naval Air Station, the Team Rosa Joint Planning area near Whiting Field, and the Santa Rosa Commerce Park in the US 90 corridor, would all benefit from the capacity this facility will provide. The need for the project is also related to committed trips associated with future development in the northern portions of Santa Rosa County, as well as, the future development in the US 90 corridor, which is hindered by the existing capacity limits of US 90.

D. Future Growth

Santa Rosa County has grown 173% since 1980 and is expected to grow another 92% by 2030. This increase will put further demand on the US 90/SR 87 segment, making growth and evacuation difficult due to a lack of roadway capacity. In Traffic Analysis Zones adjacent to the corridor, population is anticipated to grow by 2,648 from 2,029 to 4,677, or 131 percent,



between 1997 and 2020. Employment is projected to increase by 575 from 908 to 1,483, or 63 percent. The number of dwelling units is forecasted to rise by 1,114 from 827 to 1,941, or 135 percent.

E. Traffic Data

According to the Santa Rosa County Comprehensive Plan, the current adopted Level of Service (LOS) standard for US 90 is D. In 2008, US 90 from Ward Basin Road to SR 87N had a failing level of service. Without the proposed improvement, the operating conditions will continue to deteriorate. The Raw Model Volume for the 2020 Needs Plan for this new segment is 9,472 vpd. This would provide much needed relief to US 90.

F. Safety/Crash Rates

The information below contains crash data from the period of 2004 thru 2009 according to Florida Department of Transportation TSAT data base. On SR 87 south, from I-10 to US 90, between mile points 18.500 (I-10) and 19.769 (US 90), there were a total of 86 crashes, 47 of those were with injuries, and 39 with property damage only. The majority of the crashes in this segment occurred at the US 90/SR 87S intersection.

On US 90, from SR 87 south to SR 87 north, between mile points 11.610 and 16.202, there were a total of 234 crashes, 144 of those were with injuries, 1 fatality and 89 with property damage only. The majority of these crashes were distributed throughout the segment. There was, however, a slightly higher concentration of crashes at the US 90/SR 87N intersection. The single fatality in the segment occurred at milepost 13.847 just east of Ward Basin Road.

On SR 87N, from US 90 to Southridge Road, between mile points 0.004 and 11.362, there were a total of 166 crashes, 113 of those were with injuries, and 53 with property damage only. As with the segment along US 90, the majority of these crashes were distributed throughout the segment. There was, however, a slightly higher concentration of crashes at the US 90/SR 87N intersection.

The SR 87 Connector will include a new roadway to connect SR 87S and SR 87N. Presently, the SR 87 corridor follows along US 90, a congested roadway, for five miles. This portion of the corridor is operating at a LOS F and is the area where the only fatality in the corridor occurred. Improvements to the existing roadway in this vicinity are difficult due to the historic downtown Milton area. By developing a new corridor that does not follow the existing US 90 alignment, the traveler would be able to avoid this high traffic area.

G. Plan Consistency

The proposed new facility is consistent with the Santa Rosa County Comprehensive Plan, and is also referenced in the County's Capital Improvements Schedule in Policy 4.1.E.3. The Comprehensive Plan design year for this facility is currently 2025, although as the project moves through the next study phase and a formal forecast traffic report is completed, the design year will change to allow for a standard twenty year forecast complying with federal



guidelines (Design Year 2035). Likewise, the proposed new facility is in the TIP and the STIP, as well as, in the Florida/Alabama TPO five-year work program.

III. METHODOLOGY

The terms “threatened and endangered species” or “T&E species” are used here to indicate any plant or animal taxon that has been afforded protected status (listed as threatened or endangered, or as a species of special concern) by the Federal or State jurisdictional agencies. The federal agencies that share the authority to list species as Endangered and Threatened are the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) and the USFWS. The NOAA-NMFS is responsible for listing most marine species (NOAA-NMFS), and the federal list of animals and plants is administered by the USFWS, (50 CFR 17 – animals, and 50 CFR 23 - plants). The FWC maintains the state list of animals designated as endangered, threatened, or species of special concern (Rules 68A-27.003, 68A-27.004, and 68A-27.005, respectively, Florida Administrative Code - F.A.C.). The state lists of plants, which are designated endangered, threatened, and/or commercially exploited, are administered and maintained by the DACS (Chapter 5B-40, F.A.C.).

***Note:** federal and state status designations may change over time, thus the status of some of the species observed within the alignment area may change in the future.

The T&E species survey was performed by ERC using standard biological survey methods. These methods included a combination of interpreting aerial photos and soils maps, reviewing state maintained location records, and conducting exhaustive on-site field investigations. Aerial photographs and soil surveys provide useful predictive information based on the historic and current conditions of a particular landscape - this is especially helpful when the site has been altered. When this information is combined with known location records for T&E species, and a careful examination of the current botanical structure of the site, ecologists with specific knowledge of local flora and fauna can effectively predict the taxa likely to occur. Accordingly, target-specific search strategies can be designed to ensure that an effective survey is conducted.

A. Methods

The following represents a standardized, but necessarily flexible series of steps followed in conducting T&E species investigations.

1. Compiled a list of known T&E species for Santa Rosa County

This list provides a basis from which to build a target list of taxa. To begin this process a search list of all federal and state T&E plant and animal species that could potentially occur in Santa Rosa County, Florida was compiled (Table 1). This list included a review of known T&E species occurrences based upon Florida Natural Areas Inventory (FNAI) and the following:

- USFWS Species List for Santa Rosa County
- USFWS Critical Habitat Mapper <http://criticalhabitat.fws.gov/crithab/>



- USFWS National Wetland Inventory (NWI) Database
- NMFS Essential Fish Habitat Mapper
<http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>
- U.S. Department of Agriculture (USDA), NRCS Soil Survey Santa Rosa County
- U.S. Geological Survey (USGS) Topographic Quadrangle maps, 7.5 minute series
- FNAI Element Occurrence Data
- DOACS Species Lists
- FWC Eagle Locator <https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx>
- FWC Wading Bird Colony Data
- USFWS Classification of Wetlands and Deepwater Habitats of the United States (1979)
- Northwest Florida Water Management District (NFWFMD), Florida Land Use, Cover, and Forms Classification System (FLUCCS) data (1995)
- Aerial photographs of the project area from 1940 and 2010

2. Examined aerial photographs of the site

Plant and animal species are associated with specific ecological communities and landscape conditions. These associations were identified for the potential T&E species in the alignments, and considered with respect to historical and current conditions. In altered or unnatural landscapes, the species present may be influenced by historical, as well as current, conditions.

a. Historical aerial photographs were examined to determine plant communities in order to ascertain potential T&E species in the alignments. Historical 1940 aerials were viewed online via the University of Florida website. These photographs are not georeferenced and no figures were created using these aerials (www.ufl.edu/aerials).

b. Current aerial photographs were examined to determine the relative conditions of the plant communities in order to ascertain potential T&E species in the alignment. 2010 aerials were used for this assessment and are depicted on the ESBA figures containing aerial photographs.

3. Examined soil surveys and wetland maps

Soil surveys and maps depicting wetlands were prepared and analyzed by ERC wetland scientists in order to identify potential T&E species habitat and natural areas on site. This data was also used as a component of the reticulated flatwoods salamander desktop analysis (Appendix F), which combined soils survey data, NWI data, and FLUCCS data. These data layers were analyzed to determine if there was a potential for reticulated flatwoods salamander habitat outside of the critical habitat unit. The eight resulting potential pond areas, as described in Appendix F, were evaluated in the field using the HDR method (see 7, below).

4. Ground truthed plant communities

A current aerial photograph was used to identify the signature of the plant communities. Due to fire suppression and other disturbances, the actual plant community boundaries are difficult



to observe on current aerial photographs and must be ground truthed. To alleviate this problem the alignments were walked during the field survey.

5. Determined target T&E taxa

Based on the habitat (plant community) association of each target taxon, an estimation was made as to the likely areas of occurrence for each potential species. A search list of T&E species was compiled and added to the list of known species for Santa Rosa County, described above. The Efficient Transportation Decision Making (ETDM) comments were analyzed to ensure that the target T&E taxa were inclusive of species specifically mentioned.

6. Designed search strategies

After the plant communities were identified in the alignments, a strategy for searching for threatened and endangered plants and animals was developed. This strategy involved a series of transects designed to exhaustively assess each plant community.

7. Walked transects through plant communities

Depending on the habitat and past land use history, the survey intensity employed varied. High Intensity surveys were conducted in areas that appear unique, or that have greater potential for T&E species due to the presence of a specific plant community or habitat. In these areas, 80% or more of the habitat was traversed with transects (Figure 5 depicts the transect tracklogs). All surveys within the alignments were high intensity surveys.

In areas with gopher tortoise habitat, a minimum of 15% of the area proposed to be impacted must be surveyed according to the FWC gopher tortoise guidelines. In order to cover the minimum area, ERC biologists worked in teams and walked the alignments along evenly-spaced belt transects that were approximately 30 feet wide. The width of the 30 foot belt transects exceeded the 15% requirement, as depicted on Figure 5 – Transect Location Map, and ensured that sufficient area was surveyed to determine the presence of potentially occupied burrows and/or abandoned burrows. Since the majority of the SR 87 alignment alternatives, excluding the existing roadway and wetlands, is suitable gopher tortoise habitat, high intensity transects were walked throughout the entire alignments as depicted on Figure 5.

ERC evaluated a 1,500 foot wide corridor buffer as a component of the reticulated salamander desktop analysis. The eight resulting potential pond areas were field verified and evaluated using the HDR method. The HDR method refers to the reticulated flatwoods salamander evaluation method developed by HDR, Inc. in conjunction with the USFWS and FWC in 2001 to assess habitat potential of wetland areas for the frosted flatwoods salamander and the reticulated flatwoods salamander. The HDR method was used to assess the quality of the potential ponds, the pond ecotones, and the uplands located around the ponds.

The majority of the habitats within the alignment areas are fire suppressed and do not have large stands of mature pine trees, which makes them inappropriate for red cockaded woodpecker habitat. The plant community descriptions follow in the results section. The FWC



bald Eagle Nest Locator was used to determine the presence of known eagle nests, but there are none in the vicinity of the project.

8. Compiled list of T&E species encountered

After the site was searched, a list of all federal and state T&E species located in the alignments was compiled and included in this report.

IV. RESULTS AND DISCUSSION

A. Results

T&E species occurrences known for Santa Rosa County were compiled based on FNAI information, USFWS T&E species lists, FWC, and literature reviews. This cumulative list of potential species is presented in Table 1. Eighty eight species are known to occur, or might potentially occur, in Santa Rosa County.

With respect to T&E species within the alignments, the majority of the alignment area warranted a high intensity search, since the upland habitats are predominantly suitable for gopher tortoises and the wetlands have relatively minor disturbances. Upland areas had a good diversity and coverage of native herbaceous groundcover species, and due to the potential habitat for gopher tortoises, these areas were searched thoroughly. The majority of T&E plant species were observed within or adjacent to wetlands and within the floodplains of the Blackwater River and Clear Creek.

1. Soils

The soils exert considerable influence on the distribution of flora and fauna. Depending on composition of the soils and their wetness and/or drainage, particular plant communities will develop.

Soil types within the alignments were determined and characterized following the Soil Survey of Santa Rosa County (USDA, 1977). Soils within the uplands are documented in Table A1. Table A1 also describes the depth to the seasonal high water table and the approximate acreage of each soil mapping unit in each alignment. The depth to the water table is an important indicator of suitability for gopher tortoise habitat, with preferred soils having less clay content and greater depth to the water table. Albany Loamy Sand, Dothan Fine Sandy Loam, and Pactolus Loamy Sand depicted below are potentially suitable for gopher tortoise. The other soil types are more suitable due to the less clay content and depth to the water table.

Table A1. Alignment Alternative Upland Soils

Soil #	Soil Name	Seasonal High Water Table	Alt.1 Acres	Alt.2 Acres
1	Albany Loamy Sand 0-5% Slopes	12-30"	14.65	14.65
5	Bonifay Loamy Sand 0-5% Slopes	>72"	12.91	11.12
9	Dothan Fine Sandy Loam 2-5% Slopes	42-48"	5.25	0.00
14	Fuquay Loamy Sand 0-5% Slopes	>72"	0.11	0.10



19	Kalmia Loamy Fine Sand 2-5% Slopes	>72"	0.79	0.80
21	Lakeland Sand 0-5% Slopes	>72"	13.99	39.46
22	Lakeland Sand 0-5% Slopes	>72"	2.65	2.77
34	Pactolus Loamy Sand 0-5% Slopes	18-30"	14.24	14.55
44	Troup Loamy Sand 0-5% Slopes	>72"	26.43	29.18

Soil types within the wetlands are documented in the following table. The approximate acreage of each soil mapping unit in each alignment and the depth to water table is also provided. These soil types are unlikely to be utilized by the gopher tortoise.

Table A2. Alignment Alternative Wetland Soils

Soil #	Soil Name	Seasonal High Water Table	Alt. 1 Acres	Alt. 2 Acres
3	Bibb-Krinston Association	<10"	18.65	18.64
37	Rains Fine Sandy Loam	0-10"	2.96	1.03
40	Rutlege Loamy Sand	At or Near Surface	17.17	17.15

2. Plant Communities

Five natural ecological communities were observed within the alignments (Sandhill, Floodplain Swamp, Basin Swamp, Dome Swamp, and Seepage Slope/Wet Prairie). There are many abiotic and biotic factors that influence the type of plant community development. Three of the most important factors are soil, hydrology, and fire. Landscape topography in this area of north Florida contains ridges and depressions. These depressions may be primarily seepage slope or contain a wetter bog or basin swamp surrounded by a margin of seepage slope. In deeper and generally wetter basin wetlands or where there is an abrupt gradient between uplands and wetlands, the upland plant communities will transition directly to a wetland, such as a bog or basin swamp, without a broad ecotone of seepage slope. Seepage slopes sometimes grade into floodplain swamps associated with the Blackwater River and Clear Creek.

Field descriptions of each community and their suitability for T&E species follow below. In each case, the most prevalent plant species are listed, followed by the results with respect to any T&E species observed in the alignments. Subsequently each T&E species is individually discussed.

a. Upland Plant Communities

i. Sandhill (FLUCCS #410 – Upland Coniferous Forests)

Alternative 1 = 57 acres

Alternative 2 = 83 acres

The Sandhill plant community that occurs along this alignment is a mixture of areas that are been planted in pine and other areas that are unplanted but, all of areas are fire suppressed. Fire suppression has allowed the growth of opportunistic, weedy tree species such as laurel oak (*Quercus hemisphaerica*), water oak (*Quercus nigra*), and Sweetgum (*Liquidambar styraciflua*) and shrubs such as hollies (*Ilex* spp.), blueberries (*Vaccinium* spp.), and others. As a result, the typical canopy and shrub layer cover is unnaturally high and the diverse groundcover associated



with the intact version of this plant community is not present. Though a diversity of species characteristic of Sandhill plant communities were identified during the survey, their coverage was sparse throughout each alignment. Portions of the alignments were planted with sand pine (*Pinus clausa*), which is not a characteristic species for Sandhill plant communities. In most cases, the canopy is dominated by sand live oak (*Quercus geminata*) and scattered longleaf pine (*Pinus palustris*) with a subcanopy/shrub strata of yaupon (*Ilex vomitoria*) and bluejack oak (*Quercus incana*) and a groundcover dominated by runner oak (*Quercus margaretta*). The characteristic dominant canopy species for this plant community is longleaf pine. Sandhill is the most widespread upland plant community in the alignments. The most prevalent plants and any T&E species observed in the sandhill are listed below.

- Sandhill – Plant Species Observed:

Observed canopy and subcanopy species include longleaf pine, turkey oak (*Quercus laevis*), post oak (*Quercus stellata*), sand live oak, dwarf live oak (*Quercus minima*), running oak (*Quercus pumila*), deerberry (*Vaccinium stamineum*), sparkleberry (*Vaccinium arborea*), and yaupon. Observed groundcover species include wiregrass (*Aristida stricta*), indiagrasses (*Sorghastrum* spp.), false rosemary (*Conradina canescens*), bluestem (*Andropogon* spp.), Oak ridge lupine (*Lupinus diffusus*), gopher apple (*Licania michauxii*), woody goldenrod (*Chrysoma pauciflosculosa*), golden asters (*Chrysopsis* spp.), silkgrass (*Pityopsis* spp.), blazing stars (*Liatris* spp.), bracken fern (*Pteridium aquilinum*), and wild indigo (*Baptisia* spp.).

- Sandhill – Threatened & Endangered Species observed:

Plants: Hairy Florida wild indigo (*Baptisia calycosa* var. *villosa*) – State Threatened

Animals: Gopher tortoise – State Threatened

b. Wetland Plant Communities

i. Seepage Slope / Wet Prairie (FLUCCS #643 – Wet Prairie / Pine Savanna) (NWI Classification – Palustrine, Freshwater Forested/Shrub Wetland)

Alternative 1 = 19.41 acres

Alternative 2 = 19.16 acres

Seepage slopes occur where the downward movement of ground water is redirected laterally by less permeable layers in the soil such as increased clay content or spodic horizons and water flows at or near the ground surface, saturating the soils. Generally wet prairies are seepage slopes that have lower gradient slopes over a wider distance creating large expanses of surface flow through sandy soils and are generally open, containing the greatest diversity in the groundcover. These systems are known for a high diversity of herbaceous and graminoid plant species and require regular, natural fires to burn through the landscape and control woody shrubs species, which otherwise grow to an inappropriate lifeform and alter the habitat structure. Many endemic and imperiled herbaceous plant species are associated with this plant community because seepage slopes are typically not found in an appropriate condition that favors a diverse groundcover, which would typically include many T&E species. In north Florida, large expanses of Seepage Slope and Wet Prairie have been converted to pine plantations and are altered by fire-suppressed growth of woody species, which negatively affects the characteristic, species-rich groundcover. The majority of the seepage slope/wet prairie within



the alignment areas has been fire suppressed and is dominated by black titi (*Cliftonia monophylla*), white titi (*Cyrilla racemiflora*), sweet gallberry (*Ilex coriacea*), and gallberry (*Ilex glabra*). In areas that have been mowed or sprayed with broad leaf specific herbicides, such as the power line easements, there was often greater plant diversity and a more natural condition. The most prevalent plants and any T&E species observed in the seepage slopes are listed below.

- Seepage Slope / Wet Prairie – Plant species observed:

There was a scattered canopy, when one was present at all, which consisted of slash pine (*Pinus elliotii*) and pond cypress (*Taxodium ascendens*). The subcanopy and shrub layers were dominated by black titi (*Cliftonia monophylla*), white titi (*Cyrilla racemiflora*), sweet gallberry (*Ilex coriacea*), fetterbush (*Lyonia lucida*), gallberry (*Ilex glabra*), sweet pepperbush (*Clethra alnifolia*), bayberry (*Myrica caroliniensis*), and odorless bayberry (*Myrica inodora*). The groundcover species included yellow colicroot (*Aletris lutea*), wiregrass (*Arista stricta*), sedge (*Carex* spp.), centella (*Centella asiatica*), woolly sunbonnets (*Chaptalia tomentosa*), rosebud orchid (*Cleistes divaricate*), sand swamp whitetop (*Rhynchospora latifolia*), pink sundew (*Drosera capillaris*), water sundew (*Drosera intermedia*), fleabane (*Erigeron vernus*), pipewort (*Eriocaulon* spp.), yellow fringed orchid (*Platanthera ciliaris*), bog buttons (*Lachnocaulon* spp.), umbrella grass (*Fuirena squarrosa*), blazing star (*Liatris spicatus*), club moss (*Lycopodium* spp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), common water dropwort (*Oxypolis filiformis*), wild bachelor's button (*Polygala lutea*), milkwort (*Polygala cruciata*), meadow beauty (*Rhexia alifanus*), meadow beauty (*Rhexia petiolata*), yellow meadow beauty (*Rhexia lutea*), beakrush (*Rhynchospora* spp.), parrot pitcher plant (*Sarracenia psittacina*), nutrush (*Scleria* spp.), bamboo vine (*Smilax laurifolia*), goldenrod (*Solidago* spp.), and yellow-eyed grass (*Xyris* spp.).

- Seepage Slope– Threatened & Endangered Species observed:

Plants:

- Pine-woods Bluestem (*Andropogon arctatus*) – State Threatened
- Spoon-leaved Sundew (*Drosera intermedia*) – State Threatened
- Panhandle Lily (*Lilium iridollae*) – State Endangered
- Primrose Butterwort (*Pinguicula primuliflora*) – State Endangered
- Yellow Fringe Orchid (*Platanthera ciliaris*) – State Threatened
- Fernald's Pogonia (*Pogonia (Cleistes) bifaria*) – State Threatened
- White-top Pitcher Plant (*Sarracenia leucophylla*) – State Endangered
- Parrot Pitcher Plant (*Sarracenia psittacina*) – State Threatened
- Gulf Purple Pitcher Plant (*Sarracenia rosea (S. purpurea)*) – State Threatened

Animals: None observed

ii. **Basin Swamp (FLUCCS# 617 – Mixed Wetland Hardwoods)**
(NWI Classification – Palustrine, Freshwater Forested/Shrub Wetland)

Alternative 1 = 8.92 acres

Alternative 2 = 8.92 acres



Basin swamps are wetland plant communities characterized by long periods of inundation punctuated by infrequent dry periods. These areas are depressions in a relatively flat landscape and are dominated by a variety of canopy, subcanopy, and shrub species such as black titi, pond cypress, swamp bay (*Persea palustris*), swamp tupelo (*Nyssa biflora*), sweetbay magnolia (*Magnolia virginiana*) and slash pine. The basin swamps within the alignment are fire suppressed. Frequently, the groundcover coverage is sparse and diversity is low, which is probably a result of intense competition from growth of woody species.

- Basin Swamp – Plant species observed:

The woody species found in the alignments include the following: sweet pepperbush, black titi, white titi, sweet gallberry, odorless bayberry, fetterbush, slash pine, pond cypress, swamp black gum (*Nyssa sylvatica* var. *biflora*), and sweetbay (*Magnolia virginica*). Groundcover species include: longleaf threeawn (*Aristida palustris*), sedge, centella, panic grass (*Dichanthelium scabriusculum*), fleabane, pipewort, bog buttons, club moss, royal fern, marsh fleabane (*Pluchea* spp.), beakrush, nutrush, bamboo vine, and yellow-eyed grass.

- Basin Swamp– Threatened & Endangered Species observed:

Plants: None observed

Animals: None observed

iii. Dome Swamp (FLUCCS# 630 – Wetland Forested Mixed)
(NWI Classification – Palustrine, Freshwater Forested/Shrub Wetland)

Alternative 1 = 1.07 acres

Alternative 2 = 0 acres

Dome swamps are wetland plant communities characterized by long periods of inundation and occur in depressions in the landscape that may or may not be associated with other types of wetland systems (they may be isolated wetlands). Dome swamps typically have a partial to entirely closed canopy of cypress, black gum, and sweet bay, which also characterizes the dome swamps in the alignments. The subcanopy consists of cypress, sweet bay, tupelo, and red maple. There is a thick woody shrub understory containing: St. John's wort (*Hypericum chapmanii*), titi, myrtle leaf holly, and fetterbush.

- Dome Swamp – Plant species observed:

The canopy species and subcanopy species observed are pond cypress, swamp black gum, sweetbay, sweet gallberry, myrtle-leaf holly (*Ilex myrtifolia*), bayberry (*Myrica heterophylla*), odorless bayberry, wax myrtle, black titi, white titi, red chokeberry (*Photinia pyrifolia*), sweet pepperbush, St. John's- wort (*Hypericum chapmanii*), and fetterbush. Observed groundcover species include: Virginia chain fern (*Woodwardia virginica*), royal fern, cinnamon fern, bamboo vine, poison ivy (*Toxicodendron radicans*), sedge, panic grass, longleaf threeawn, wiregrass, broomsedge (*Andropogon* spp.), pipewort, bog buttons, beakrush, Curtiss' sandgrass (*Calamovilfa curtissii*), and yellow-eyed grass.

- Dome Swamp – Threatened & Endangered Species observed:

Plants:



- Pine-woods Bluestem (*Andropogon arctatus*) – State Threatened
- Curtiss' Sandgrass (*Calamovilfa curtissii*) – State Threatened
- Spoon-leaved Sundew (*Drosera intermedia*) – State Threatened
- Small-flowered Meadowbeauty (*Rhexia parviflora*) – State Endangered
- White-top Pitcher Plant (*Sarracenia leucophylla*) – State Endangered
- Parrot Pitcher Plant (*Sarracenia psittacina*) – State Threatened
- Gulf Purple Pitcher Plant (*Sarracenia rosea*) – State Threatened

Animals: None observed

**iv. Bottomland Forest (FLUCCS# 615 – Streams and Lake Swamps (Bottomland))
(NWI Classification – 1) Palustrine, Freshwater Forested/Shrub Wetland & 2) Riverine)**

Alternative 1 = 18.51 acres

Alternative 2 = 18.51 acres

Bottomland forests are wetland plant communities that typically connect to riverine communities. Bottomland forests are seasonally flooded and influenced by precipitation. Bottomland forests have closed canopies and a mixture of evergreen and deciduous trees in the canopy. The bottomland forests in the alignments surround both the Blackwater River and Clear Creek, which are both blackwater streams that drain into the Pensacola Bay. Because of the nature of the Blackwater River system, these plant communities in the alignment differ from many other bottomland forest systems because of the low mineral content and acidic water chemistry. These systems have many similarities with seepage slope/wet prairie and dome swamp systems throughout the floodplain.

● Bottomland Forest – Plant species observed:

The canopy species and subcanopy species observed are pond cypress, swamp black gum, slash pine, Atlantic white cedar (*Chamaecyparis thyoides*), sweetbay, southern magnolia (*Magnolia grandiflora*), dahoon (*Ilex cassine*), sweet gallberry, myrtle-leaf holly, bayberry, odorless bayberry, wax myrtle, black titi, white titi, red chokeberry, sweet pepperbush, St. John's- wort, fetterbush, St. John's- wort (*Hypericum galioides*). Observed groundcover species include: Virginia chain fern, royal fern, cinnamon fern, poison ivy, spikegrass (*Chasmanthium* spp.), sedge, panic grass, longleaf threeawn, wiregrass, broomsedge, pipewort, bog buttons, beakrush, and yellow-eyed grass.

● Bottomland Forest – Threatened & Endangered Species observed:

Plants:

- Spoon-leaved Sundew (*Drosera intermedia*) – State Threatened
- Panhandle Lily (*Lilium iridollae*) – State Endangered
- Primrose Butterwort (*Pinguicula primuliflora*) – State Endangered
- Yellow Fringe Orchid (*Platanthera ciliaris*) – State Threatened
- Fernald's Pogonia (*Pogonia (Cleistes) bifaria*) – State Threatened
- White-top Pitcher Plant (*Sarracenia leucophylla*) – State Endangered
- Parrot Pitcher Plant (*Sarracenia psittacina*) – State Threatened



Animals: None observed

Table B. Habitat Types and Species Involvement[∞]

Habitat Type	Alt. 1	Alt. 2	Appropriate Habitat By Species (Yes/No)								
	Acres	Acres	GS ⁺	FS ⁺	EIS ⁺	WS ⁺	RCW ⁺	FM ⁺	GT ⁺	SAK ⁺	FBB ⁺
Sandhill	57	83	No	No	Yes	No	No	No	Yes	No	Yes
Seepage Slope / Wet Prairie	19.41	19.16	No	Yes	No	Yes	No	No	No	No	Yes
Basin Swamp	8.92	8.92	No	Yes	No	Yes	No	No	No	No	Yes
Dome Swamp	1.07	1.07	No	Yes	No	Yes	No	No	No	No	Yes
Bottomland Forest	18.51	18.51	Yes	No	No	Yes	No	Yes	No	No	Yes

[∞] Species involvement is the same for each alternative alignment since they overlap for ¾ of the length

⁺Species name abbreviations: GS-Gulf sturgeon, FS-flatwoods salamander, EIS-Eastern indigo snake, WS-wood stork, RCW-red cockaded woodpecker, FM-freshwater mussels, GT-gopher tortoise, SAK-Southeastern American kestrel, FBB-Florida black bear

3. T&E Species

The following are descriptions of the Federally and State listed wildlife and plant species that that have a potential for involvement in the SR 87 PD&E alignments.

a. Animals

i. Federally Listed Wildlife

Gulf Sturgeon

The Gulf sturgeon is federally and state listed as a threatened species. Sturgeon is a slow-maturing fish, with females requiring 8 to 12 years to reach sexual maturity, while males take 7 to 10 years. Most adult feeding occurs along the Gulf of Mexico and its estuaries. Being a bottom-feeding species, they primarily eat invertebrates, including brachiopods, insect larvae, mollusks, worms, and crustaceans. Gulf sturgeon is a subspecies of the Atlantic sturgeon (*A. oxyrinchus*), which can be found along the Florida coast. The Gulf sturgeon is an anadromous species (migrates upriver from the sea to spawn in freshwater) and populates both freshwater and marine environments. As part of the sturgeon lifecycle, the species is known to acclimate to fluctuating salinity levels through osmoregulation as early as age one. The Blackwater River is designated as Gulf sturgeon critical habitat by the USFWS. Additional discussion of the project as it relates to the sturgeon, including critical habitat, is found below (Page 21).

Reticulated flatwoods salamander

The reticulated flatwoods salamander is one of the smaller mole salamanders and is federally and state listed as an endangered species. The flatwoods salamander is a fossorial (burrowing) species that breeds within ephemeral wetlands in the fall. After the eggs are laid, the wetlands must flood within 2-3 days otherwise the eggs will desiccate. By March or April the adult salamanders leave the breeding ponds, but are hard to locate since they are fossorial. Adult salamanders are nocturnal and carnivorous, opportunistic feeders, eating primarily earthworms and arthropods. The flatwoods salamander requires fire-maintained, mesic pine uplands containing wiregrass and longleaf pine and isolated, depressional wetlands that flood in the fall. The RFS-2, sub-unit A critical habitat unit is traversed by both alignments 1 and 2. Additional discussion of the project as it relates to the flatwoods salamander critical habitat is found below (Page 18).



Eastern Indigo Snake

The eastern indigo snake, although rare in most areas, occurs throughout Florida and southern Georgia. The eastern indigo snake is listed by both the USFWS and the FWC as threatened. This species is known to occupy a broad range of habitats from scrub and sandhill communities, to wet prairies and mangrove swamps. They are considered commensals of the gopher tortoise, wintering over in their burrows in the uplands, but foraging in more mesic to hydric habitats. The Eastern indigo snake seems to be more strongly associated with high, dry, well-drained sandy soils, closely paralleling the sandhill habitat preferred by the gopher tortoise. During warmer months, Eastern indigo snakes also frequent streams and swamps, and individuals are occasionally found in pine flatwoods. Gopher tortoise burrows and other subterranean cavities are commonly used as dens and for egg laying. There is a moderate potential for the Eastern indigo snake due to the amount of undeveloped land within the alignments. The USFWS Standard Measures for the Eastern Indigo Snake (Appendix D), which specify education of the construction contractor concerning avoidance of eastern indigo snakes and post construction reporting, will be implemented during the construction phase.

Wood Stork

The wood stork is listed as endangered by both the USFWS and the FWC. The wood stork is a highly colonial species usually nesting in large colonies and feeding in flocks. Nests are frequently located in trees or in man-made structures surrounded by water. They feed in freshwater marshes, narrow tidal creeks, flooded tidal pools, and roadside ditches. Particularly attractive feeding sites are depressions in marshes or swamps where fish become concentrated during periods of falling water levels. There are no wood stork rookeries documented in proximity to the alignments (FWC, 1999). The closest rookery is 12 miles away (FWC, 1999) and the closest Core Foraging Area (CFA) is 142 miles east of the alignments in Gadsden County (FWC, 2010).

Red-cockaded woodpecker

The red-cockaded woodpecker (RCW) is federally endangered and a state species of special concern. The RCW is a small woodpecker inhabiting open, mature pine woodlands, generally longleaf pine flatwoods in north and central Florida. RCWs nest and forage in mature pine flatwoods and their distribution are tied to remaining areas of old-growth pine forests. RCWs are nonmigratory and maintain territories year-round. Populations are small and highly fragmented and are found primarily on federally managed lands with some state-owned and private lands supporting smaller populations. There are no documented red-cockaded woodpecker populations within the vicinity of the alignments (FWC, 2005). The alignments lacked mature pine trees that would be suitable for red cockaded woodpecker populations.

Freshwater mussels

Several species of freshwater mussels are federally and state listed as threatened and endangered throughout north Florida and eight additional species are proposed for listing under the Endangered Species Act (ESA). The Blackwater River and Clear Creek are not listed as



critical habitat for any currently listed or proposed mussel species and there are currently no freshwater mussel species listed as threatened or endangered in Santa Rosa County. The proposed critical habitat is within adjacent watersheds upstream of the alignments.

Florida manatee

The Florida manatee is listed as endangered by both the USFWS and the FWC. The Florida manatee is a large (182 to 400 lbs., up to nine feet long), gray, nearly hairless, walrus-like aquatic mammal. Florida manatees have minimal tolerance for cold weather and are more common to warm water areas. Manatees travel long distances in warmer springtime months and return to warm water sites in the fall. The home range for the Florida manatees is generally the southeastern United States, although some individuals have been documented to travel north to Massachusetts and west to Texas. Manatees occur within Santa Rosa County according to the USFWS and FWC; however, there is no critical habitat within the vicinity of the alternative alignments. This species was not located during the field surveys and it is unlikely that manatees would travel upstream into the Blackwater River in the vicinity of the project.

ii. State Listed Wildlife

Gopher Tortoise

The gopher tortoise is a state listed threatened species, which generally lives in sandy, well-drained soils with herbaceous plants available for foraging. Gopher tortoises dig burrows in soil for shelter and for laying eggs. The burrow may also become occupied by commensal species, including the Florida pine snake, eastern indigo snake, and the gopher frog. There were approximately 55 gopher tortoise burrows observed within the alignment areas.

Florida Gopher Frog

The Florida gopher frog is commensal with the gopher tortoise and is listed by the FWC as a species of special concern. This frog is most often found in upland sandhill, scrub, pine flatwoods, and other xeric habitats occupied by the gopher tortoise with nearby wetlands. No Florida gopher frogs were previously documented within or adjacent to the alignments and none were observed during field surveys. Occurrence of this species within the alignments is possible due to the presence of both gopher tortoise burrows and suitable habitat within and near the alignments. The FWC encourages that commensal species be relocated with gopher tortoises.

Southeastern American Kestrel

The southeastern American kestrel is a state threatened falcon species found in open pine habitats, sandhills, prairies and pastures. The species utilizes tall dead trees or utility poles for cavity nest sites. The species is a year-round resident; the subspecies that breeds in Florida is listed while the wintering northern migrant is not listed. There were no observed or documented kestrels within the alignments.

Wading Birds

The 1) tricolored heron (*Egretta tricolor*), 2) snowy egret (*Egretta thula*), 3) white ibis (*Eudocimus albus*), and 4) little blue heron (*Egretta caerulea*) are state listed species of special



concern. These wading birds feed in permanently and seasonally flooded wetlands, marshes and swamps. They are generally year-round residents and nest in low woody vegetation including willow, cypress, and woody thickets.

Florida Black Bear

While the Florida black bear was not observed during the field survey, it should be noted that portions of the alignments are within the secondary range of a Florida black bear population (Eglin). The black bear was recently delisted by FWC and is no longer a threatened species. Florida black bears are considered a wetland dependent species, being found in heavily wooded habitat, such as hardwood swamp, cypress swamp, and undisturbed upland forest. A wide variety of forested communities are needed to support the varied seasonal diet of the bears. The FWC has identified eight areas of Florida black bear populations with each one broken into primary and secondary ranges. The eight areas are identified as Eglin, Apalachicola, Osceola, Ocala, St. Johns, Glades/ Highlands, Chassahowizka, and Big Cypress. GIS data obtained from the Florida Geographic Data Library does not indicate any bear road-kills in the vicinity of the alignments (Figure 7).

Freshwater fishes

Blackmouth shiner (*Notropis melanostomus*) and crystal darter (*Crystallaria asprella*) could potentially utilize habitat within the Blackwater River and Clear Creek. Potential impacts to habitat will be minimized through the construction of bridges over these streams and implementation of best management practices required for OFW streams.

b. Plants

Pine-woods Bluestem (*Andropogon arctatus*) – State Threatened

The pine-woods bluestem is a perennial grass found in 23 Florida counties. The plant occurs in wet pine flatwoods, seepage wetlands, and wet prairies. This species was observed in wetlands throughout the alignments.

Hairy Wild Indigo (*Baptisia calycosa* var. *villosa*) – State Threatened

The hairy wild indigo is a perennial legume that is found in the western panhandle. The plant occurs in mesic pine flatwoods, sandhills, and pine uplands. This species was observed in the Sandhills during the field survey.

Curtiss' Sandgrass (*Calamovilfa curtissii*) – State Threatened

The Curtiss' sandgrass is a perennial grass and a Florida endemic species found in the panhandle. The plant occurs in and along the ecotones of dome swamps, bogs, seepage slopes, and wet prairies. This species was observed in wetlands throughout the alignments.

Spoon-leaved Sundew (*Drosera intermedia*) – State Threatened

Spoon leaved sundew is an easily overlooked sundew that is morphologically similar to more common sundew species. This plant is typically found in seepage wetlands and seepage slopes



and in disturbed sites with appropriate soils and moisture. This species was observed in wetlands throughout the alignments.

Panhandle Lily (*Lilium iridollae*) – State Endangered

The panhandle lily is an herbaceous perennial found in the western Florida panhandle. The habitat for the panhandle lily includes floodplain forests, baygalls, swamps, bogs along small streams, and seepage slopes. This species was observed in wetlands throughout the alignments.

Primrose-flower Butterwort (*Pinguicula primulifolia*) – State Endangered

The primrose-flower butterwort is a small insectivorous herb found throughout Florida. Habitat includes bogs, shallow ponds and depressions, hydric pine flatwoods and savannas, seepage slopes, and ditches. This species was observed during the field survey in the seepage slopes that occur adjacent to the Blackwater River drainage where the proposed alignments cross.

Yellow Fringed Orchid (*Platanthera ciliaris*) – State Threatened

The yellow fringed orchid is an herbaceous perennial found in the panhandle, north, and central Florida. Habitat includes seepage bogs, wet flatwoods, marshes, savannas, lake and pond shores and along streams. This species was observed during the field survey in the seepage slopes that occur adjacent to the Blackwater River drainage and the Clear Creek drainage.

Fernald's Pogonia (*Pogonia (Cleistes) bifaria*) – State Threatened

Fernald's Pogonia is a perennial orchid found in the panhandle. The plant occurs in seepage slopes, bogs, and wet prairies. This species was observed in wetlands throughout the alignments.

Small-flowered Meadowbeauty (*Rhexia parviflora*) – State Endangered

Small-flowered meadow beauty is a perennial herb found in the panhandle. The plant occurs in seepage slopes, and along the ecotones of dome swamps and depressions marshes. This species was observed in wetlands throughout the alignments.

White Topped Pitcher Plant (*Sarracenia leucophylla*) – State Endangered

White topped pitcher plant is an insectivorous plant found in herbaceous wetlands, especially wet prairie, bog, seepage slopes, and seepage streams. The red flowers of this species are conspicuous in early spring. The large white laced leaves are conspicuous in summer and early fall. This species was observed during the field survey in the seepage slopes, wet prairies and around dome swamps. This species was observed in wetlands throughout the alignments.

Parrot Pitcher Plant (*Sarracenia psittacina*) – State Threatened

The parrot pitcher plant is a carnivorous herbaceous perennial distributed throughout the Florida Panhandle. Habitats of the parrot pitcher plant include wet prairies, seepage slopes, and bogs. This species was observed in wetlands throughout the alignments.

Gulf Purple Pitcher Plant (*Sarracenia rosea* (*S. purpurea*)) – State Threatened



The purple pitcher plant is a carnivorous herbaceous perennial locally distributed in scattered locations in the Florida Panhandle and along the eastern United States up to the Great Lakes and Canada. Habitats of the purple pitcher plant include wet prairies, seepage slopes, and bogs. This species was observed in wetlands throughout the alignments.

iii. Other Species (not listed)

Bald Eagle

The Florida population of bald eagles has been nationally delisted; however, the species continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The bald eagle is a water-dependent species that is found near coastal areas, bays, rivers, lakes, or other bodies of water which provide concentrations of food sources. Suitable habitat is present throughout the project area, but bald eagle nests have not been observed along the Blackwater River, Clear Creek, or any of the wetlands associated with these waterbodies. Active eagle nests are present on the eastern shoreline of Escambia Bay approximately 8 miles west of Milton (Figure 8). No nests would be disturbed during construction activities. Prior to any construction, a site-specific survey would be conducted to determine the presence or absence of bald eagle nests in or near the construction area. The proposed project would have minimal effects on river hydraulics, the river floodplain, flow patterns, or on eagle food sources. Thus, it is anticipated that the project will not affect the bald eagle.

4. Designated Critical Habitat

The Endangered Species Act (16 U.S.C. 1531 et seq) requires the Services (USFWS and NMFS) to identify areas that are essential to the conservation of a species that is proposed for federal listing, when the important characteristics can be determined. The intent of critical habitat is the protection of the essential physical and biological features of the landscape in an appropriate spatial arrangement and quantity that is needed for a species to survive and reproduce. Critical habitat does not affect private landowner actions but does affect Federal agency actions, authorizations, and funded projects. Under the Endangered Species Act, Federal agencies must protect the characteristics of the designated areas and avoid destruction or adverse modification.

Designated critical habitat is defined as a specific area within the geographic area occupied by a federally listed species at the time it is listed. Critical habitat contains physical and biological features that are considered essential to the conservation of the species and require special management considerations for protection. Designated critical habitat can also include specific areas outside the geographic area occupied by a species at the time of federal listing if the area is determined to be essential to the conservation of the species.

The characteristics that comprise the physical and biological features are also called constituent elements and must be defined in order to designate the habitat. Primary constituent elements consist of: (1) space for individual and population growth and for normal behavior, (2) food, water, air, light, minerals, and other nutritional and physiological needs, (3) cover and/or shelter, (4) sites for breeding, reproduction, germination, seed dispersal, and/or development



of offspring, and (5) habitat that is representative of the historic geographic and ecological distribution of a species and/or protected from disturbance.

a. Reticulated Flatwoods Salamander

Designated critical habitat for the reticulated flatwoods salamander is located in the SR 87 alignment alternatives. The primary constituent elements for this species include: breeding habitat, non-breeding habitat, and dispersal habitat.

Breeding habitat consists of small (less than one to ten acres) acidic, depressional, freshwater wetlands that are seasonally flooded in the late fall or winter and dry in the late spring or early summer. These wetlands are geographically isolated from other waters and occur in pine flatwood savannas. The wetlands have a relatively open canopy and are dominated by an herbaceous layer of grasses and forbs with an overstory of pond cypress (*Taxodium ascendens*), black gum (*Nyssa sylvatica* var. *biflora*), and slash pine (*Pinus elliotii*). Burrowing crayfish is typically present, but large predatory fish are generally absent.

Non-breeding habitat is characterized by mesic pine flatwood savannas that are maintained by frequent fires. These uplands must be located with 1,500 feet of adjacent and accessible breeding wetlands. Crayfish burrows or other underground habitat must be present. Non-breeding habitat includes soils with a spodic horizon which sometimes inhibits subsurface water penetration, resulting in moist soils with water at or near the surface. A groundcover layer dominated by wiregrass is present providing support for herbaceous invertebrates which are the primary food source.

Dispersal habitat is an upland area between breeding and non-breeding habitat that allows for movements of the salamander between the areas. These areas contain a mix of vegetation types that represent a transition between upland and wetland vegetation and have an open canopy with an abundant herbaceous layer. Moist soils and subsurface structure are present.

Critical habitat unit RFS-2, Subunit A is present within the project alignments. RFS-2, Subunit A is 162 acres in size and is located on private land northeast of Milton. The final rule (74 FR 6700; February 10, 2009) states that this critical habitat unit contains all of the primary constituent elements and supports multiple life stages for the reticulated flatwoods salamander. The critical habitat unit was known to be occupied at the time of listing, but has not been surveyed since the time of initial listing. The project may affect this critical habitat unit; however, avoidance and minimization methods such as bridging the pond area and collection of stormwater runoff in ponds outside of the critical habitat unit are being considered to minimize project related impacts. Actual impacts to the critical habitat unit will depend on the final alignment, design, and construction methods.

In order to avoid a larger acreage of impact to the RFS-2 ponds, the critical habitat area, and the higher quality pond area in the center of the RFS-2, the alignment was shifted to the south in January 2012. The original alignments traversed the critical habitat at its widest point and



would have impacted a larger acreage of the RFS-2 than the currently proposed alignment (30 acres versus 8 acres or 18% of the total unit versus 5% of the total unit). The pond area that was proposed for impact by the first alignment was a higher quality pond that supported the primary constituent element requirements for the flatwoods salamanders. This pond area had the appropriate pond hydroperiod, a diverse, herbaceous ecotone, and less disturbed adjacent uplands. The alignments were then shifted to the north closer to the powerline ROW; however, the alignment still would have impacted a large portion of the critical habitat unit, a larger acreage of the pond area than the currently proposed alignment, and a higher quality portion of the pond area. The third alignment shift is the current proposal, as depicted on the figures in this ESBAR. The current alignment impacts a more disturbed portion of the critical habitat that is comprised of powerline ROW and pastureland and overall less acreage of the critical habitat than the previously proposed alignments.

After avoiding impacts to a large acreage and higher quality portion of the critical habitat unit and the higher quality pond areas, the impacts were further minimized when FDOT received Federal Highway Works Administration (FHWA) approval to construct a bridge over the pond areas. The direct impacts to land area within the critical habitat unit are now limited to the bridge support structures. The area below the bridge that will be shaded totals 8.16 acres (5% of the overall critical habitat unit). All stormwater runoff from the bridge will be collected and conveyed to stormwater treatment ponds outside of the critical habitat unit, which will minimize impacts to wetland and water quality within the ponds.

Eight unique potential pond/wetland areas were identified in the desktop analysis (Appendix F). The eight potential ponds are separated by natural features such as upland areas or manmade features such as powerline easements, roadways, and trails. These wetlands/ponds were field verified and scored, using the HDR Method, in August 2012, resulting in the following scores:

Table 1. Summary of Potential Pond Scores based on the HDR Method

Pond Number	Pond Score	Ecotone Score	Upland Score	Total Score	Quality
1	3	2	1	6	Moderate-High
2	2	1	1	4	Low-Moderate
3	1	0	0	1	Low
4	1	0	0	1	Low
5	1	0	0	1	Low
6	1	2	0	3	Low
7	2	1	0	3	Low
8	0	0	0	0	Low

Potential ponds 1 and 2 are located within the known RFS2 Critical Habitat Unit as depicted on Figure 6. These potential ponds received the highest scores out of all the pond/wetland areas. Pond 1, which is located on the outermost edge of the 1,500 foot desktop analysis buffer and in the center of the critical habitat unit, is the highest scoring pond and the only pond that would likely support RFS due to appropriate habitat conditions. Potential ponds 3-8 scored low due to poor pond conditions related to incorrect habitat types, the evidence of flowing water in the



ponds, fire suppression, overgrown ecotones, and poor quality uplands that were planted in pine and/or contained inappropriate habitat types (sandhills instead of mesic pine flatwoods). Photographs have been taken within each potential pond/wetland and HDR Scoring sheets are included with the desktop analysis (Appendix F).

b. Gulf Sturgeon

Designated critical habitat for the gulf sturgeon is located in the SR 87 alignment area. The primary constituent elements for gulf sturgeon consist of: abundant food items, riverine spawning sites, riverine aggregation areas, flow regime, water quality, sediment quality, and appropriate migratory pathways.

Abundant food/prey items – vary with life cycle stage, but include detritus, aquatic insects, worms, and mollusks within riverine habitat for larval and juvenile stages; amphipods, lancelets, polychaetes, gastropods, ghost shrimp, isopods, mollusks, and crustaceans within estuarine and marine habitat for subadult and adult stages.

Riverine spawning sites – contain substrates that are suitable for egg deposition and development, including limestone outcrops and cut limestone banks, bedrock, large gravel or cobble beds, marl, soapstone, or hard clay.

Riverine aggregation areas – staging or resting areas that are located in holes below normal river depth and are used by juvenile, subadult, and/or adult life stages to minimize energy expenditures while in freshwater. This is thought to assist with osmoregulation.

Flow regime – needed for normal behavior, growth, and survival of all life stages in the riverine environment. Flow regime is the magnitude, frequency, duration, seasonality, and change rate of freshwater discharge over time. This constituent element includes migration, breeding sites, courtship, egg fertilization, resting, and staging. Flow regime also includes maintaining spawning sites in suitable condition for egg attachment, egg sheltering, resting, and larval staging.

Water quality – includes temperature, salinity, pH, hardness, turbidity, oxygen content, and other chemical characteristics necessary for normal behavior, growth, and viability of all life stages.

Sediment quality – includes texture and other chemical characteristics that are necessary for normal behavior, growth, and viability of all life stages.

Appropriate migratory pathways – consists of safe and unobstructed pathways needed for migration within and between riverine, estuarine, and marine habitat.

The Blackwater River within the alignment area is designated critical habitat for Gulf sturgeon. This portion of the Blackwater River is part of critical habitat unit 4, which consists of the Yellow River system in Santa Rosa and Okaloosa Counties, Florida and Covington County, Alabama.



The Blackwater is a tributary to the Yellow River and is therefore included in the critical habitat unit. The Blackwater River is critical habitat from its confluence with Big Coldwater Creek to Blackwater Bay. The lateral extent of critical habitat in the Blackwater River is the ordinary high water line on each bank. The project is located north of Cooper Basin, a known congregating, resting, and staging area for Gulf sturgeon during migration.

The current alignment alternatives 1 and 2 cross the Blackwater River north and west of Cooper Basin. A bridge will be used to traverse the river and the delineated wetlands within the floodplain area to minimize direct impacts to both the floodplain and the river (Appendix E). BMPs will be used during construction to minimize impacts during construction and the USFWS Gulf sturgeon guidelines will be followed so that construction does not take place during the time of year when the sturgeon are using the river. The stormwater design will help minimize post-construction impacts to the river since the stormwater runoff from the surface of the bridge will be collected and conveyed to stormwater ponds located outside of the floodplain wetlands. Based on the avoidance and minimization measures, the project is not likely to adversely modify Gulf sturgeon critical habitat.

c. Agency Coordination

This project will require coordination and consultation with USFWS Service under the Endangered Species Act. ERC (Dr. John Tobe, Daniel Van Nostrand, Alani Davis, and Bryan Phillips) met with the USFWS (Mary Mitiga and Harold Mitchell) on November 8, 2011 to evaluate the quality and habitat potential of critical habitat RFS-2. During the field visit ERC requested that USFWS prepare a summary letter specifying their preferences for avoidance and minimization to any impacts within critical habitat unit RFS-2. A follow-up teleconference was conducted on December 8, 2011 with FDOT (Peggy Kelley), USFWS (Mary Mitiga), ERC (Martin Gawronski and Daniel Van Nostrand), and Metric (John Flora). During this teleconference USFWS recommended that FDOT avoid impacts to flatwoods salamander critical habitat, if possible. A map of the estimated pond areas was prepared by ERC and sent to USFWS on December 9, 2011. On January 17, 2012, ERC received an email response from the USFWS that stated the pond area should consider all wetlands within the critical habitat unit RFS-2. In response to the USFWS concerns regarding habitat and species impact, the alignment through the critical habitat unit RFS-2 was shifted to the southwest out of the center of the main pond and parallel to the existing powerline ROW. In order to further minimize impacts within the critical habitat unit RFS-2, FDOT contacted the FHWA to determine if it was feasible and within project constraints to bridge the wetlands within proposed alternative alignments through the RFS-2 unit. FDOT received approval to propose a bridge as depicted in Appendix D although it will add a considerable amount of cost to the project construction.

After the alignment shift and bridge proposal, ERC biologists visited the alignment areas in January 2012 to assess current alignment location to characterize RFS habitat conditions per the HDR method. The wetlands within the alignment, and in the location of the proposed bridge, are fire suppressed wetlands that do not meet the primary constituent elements of RFS critical habitat. There are also small pockets of suitable "pond" habitat surrounded by fire suppressed and cleared uplands that do not meet the primary constituent element



requirements of RFS critical habitat. The majority of the wetlands have a short hydroperiod (as observed from hydrological indicators in the field) and would not contain water for enough time each year to facilitate RFS reproduction or life cycle requirements. The uplands within this area have been disturbed by power line construction/maintenance, residential land disturbance, and agricultural land disturbances. The buffers to these wetlands have primarily been cleared and do not support the type of constituent elements required by the RFS for lifecycle requirements.

On May 16, 2012 the USFWS provided formal comments to the May 2012 ESBAR (Appendix H). The USFWS concurred with the determinations of effect for all federally listed species with the exception of the Gulf sturgeon and the reticulated flatwoods salamander. The USFWS suggested additional commitments that would be necessary for them to agree with a determination of “may affect, but not likely to adversely affect” for the Gulf sturgeon, including, but not limited to, extending the in water work limitation from “April through October” to “March through November.” The email also stated that although the USFWS recognized that impacts to the reticulated flatwoods salamander critical habitat were minimized; however, there is still a potential for project related impacts. The USFWS requested a desktop analysis to identify any potential pond areas along the length of the corridor and recommended that FHWA initiate formal consultation for potential impacts to the reticulated flatwoods salamander critical habitat.

The USFWS reviewed the desktop analysis and sent a follow-up email to FDOT on July 12, 2012 (Appendix H). The USFWS agreed with the results of the desktop analysis, but recommended initiating formal consultation for potential impacts to the critical habitat unit. The USFWS also asked if the Gulf sturgeon work restrictions could be extended. In response to the May 16, 2012 and July 12, 2012 emails, the FDOT facilitated a teleconference meeting with the USFWS on August 27, 2012 (meeting minutes are included in Attachment H). During the August teleconference meeting, the USFWS recommended that FHWA initiate formal consultation for the potential impacts to reticulated flatwoods salamander critical habitat and for the Gulf sturgeon, unless the FDOT and FHWA were willing to commit to the extended in-water work restrictions.

B. Discussion

1. T&E Species

Within the two alignment alternatives, there are a variety of wetland plant communities with various hydroperiod requirements. In some areas disturbances such as silviculture, residential development, commercial development, roadways, and other human activities have altered the habitats to a point where there is no natural habitat remaining for T&E species. Throughout the alignments, there are sections where plant communities remain intact allowing for some T&E plant species to thrive. Critical habitat units for the Gulf sturgeon and reticulated flatwoods salamander were identified in the alignment area although no individuals of either species were observed during the field surveys. There were no federally listed threatened or endangered plant species observed. The upland areas that remain undeveloped are primarily sandhill plant



communities. These areas are modified (pine plantations) and are fire suppressed, which has allowed the growth of a woody understory and the shading of herbaceous groundcover species. The effects of fire suppression have lowered the habitat suitability of this plant community for gopher tortoises; however, a number of potentially occupied gopher tortoise burrows were identified within the alignment area during the survey (see Figures A.2.1 through A.2.15). A total of 12 state listed plant species were found during field surveys.

Impacts to the T&E plant species documented during the field survey will be avoided to the maximum extent practicable since they are located primarily in the floodplains of the Blackwater River and Clear Creek. The floodplains of these waterbodies will be bridged and it is anticipated that the T&E plant species will be avoided during construction. State-listed plants exist in the project area since suitable habitat areas occur based on habitat mapping and field surveys. Pedestrian searches of these habitat areas were conducted for each state listed species. The FWC, DACS and the EDAC are being notified that FDOT as owner is allowing for salvaging by others of affected protected plants on this project prior to construction in accordance with state law (Chapter 581.185, Florida Statutes), pending their receipt of the appropriate permits. It is our conclusion that protected plants potentially occurring within the project corridor will be impacted and may be salvaged in accordance with state law (Chapter 581.185, F.S.).

Avoidance of gopher tortoise take is mandatory. In order to avoid impacts to gopher tortoise individuals, relocation permitting will be required. An additional field survey must be conducted at least 90 days prior to relocation permitting. Any gopher tortoise burrow located within 25 feet of an area proposed for development must be relocated according to FWC requirements. The FDOT will commit to perform pre-construction surveys for gopher tortoises and secure a relocation permit from the FWC for gopher tortoise burrows, as necessary. If federally listed commensals are located during the burrow surveys, separate permits will be required from USFWS during relocation.

2. Designated Critical Habitat

Minimization of impacts to the reticulated flatwoods salamander and critical habitat can be accomplished through location of the alignment to minimize intrusion into the specific habitat areas. Minimizing intrusion was accomplished by shifting the alignment to its current location from the previous two alignment paths. The roadway can be designed to minimize clearing and right-of-way width. The critical habitat area can be bridged to minimize impacts and maintain connectivity, which has been proposed. Erosion control measures will minimize impacts and specific Best Management Practices can be developed for the wetland areas within the critical habitat unit. Direct discharge from the bridge deck can be eliminated and runoff can be filtered and treated so it does not enter wetlands within the RFS critical habitat unit. The project is not likely to adversely modify the critical habitat unit.

In order to minimize impacts to the Gulf sturgeon and Gulf sturgeon critical habitat, the Blackwater River and associated floodplain on both sides of the river can be bridged. The river



can be spanned if feasible, or a minimum number of piers can be installed in the river. Dredging can be eliminated as can the use of explosives in or adjacent to the river. Migration corridors are not proposed to be blocked or impeded. Silt curtains will be used during the construction of the piers and other in water work. In water construction could be minimized during migratory periods, generally from March to May and October through November, but a more specific time period that is based on the sub-population using the Blackwater River can be developed in conjunction with USFWS. Direct discharge from the bridge deck can be minimized to the maximum extent practicable and runoff can be treated in permitted stormwater ponds prior to any discharges. The Blackwater River is an Outstanding Florida Water and will require specific Best Management Practices during construction and stormwater design to prevent degradation to the river, which will minimize impacts to the Gulf sturgeon. Construction staging areas can be located outside the floodplain. Best Management Practices for Outstanding Florida Waters can be used in the floodplain north of Cooper Basin to minimize runoff, sedimentation, and prevent degradation. The project is not likely to adversely modify the Gulf sturgeon critical habitat unit.

3. Essential Fish Habitat (EFH)

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) on actions that are authorized, funded, or undertaken that may adversely affect Essential Fish Habitat (EFH). EFH evaluations are also required as a component of the PD&E process in accordance with chapter 3.17 of the PD&E Manual, Part 2. A review of NMFS's EFH Mapper (http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx) indicates that EFH is not present in the project area. The nearest mapped EFH is located approximately 3.1 miles downstream from the project area and corresponds with the approximate limits of tidal influence. Any potential downstream impacts would be minimized through the use of bridges and erosion control measures. In summary, the SR 87 project would not have an adverse effect on EFH.

V. ALTERNATIVES EVALUATION

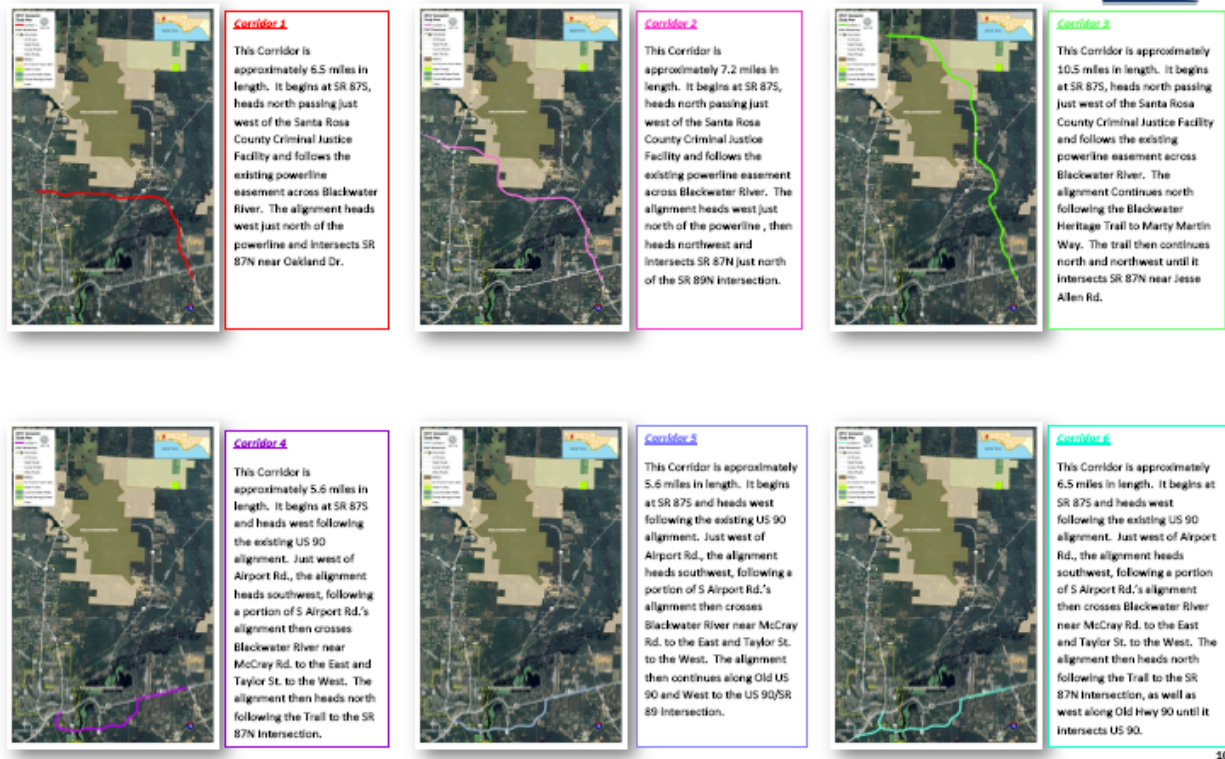
A. Alternatives Summary

Six different corridor alternatives and the no-build alternative were evaluated during the corridor alternatives phase of the PD&E. The alternatives evaluation and the figure below depicting the six original corridor alternatives were documented in the *“Corridors Alternative*



Evaluation Summary Report," (Metric Engineering, 2011).

Figure 2.1 Corridor Maps



(Metric, 2011- Page 10)

The corridor alignment evaluation resulted in the elimination of Alignment 3, Alignment 4, Alignment 5, and Alignment 6. Alignments 1 & 2 moved forward for additional analysis and comparison. There has been no preferred alignment selected as of December 2011.

B. No-Build Alternative

National Environmental Policy Act (NEPA) and FHWA guidelines require an analysis to consider what would happen to the environment in the future if the proposed project were not built. The no-build alternative is not tenable due to the failing LOS for the existing corridor as discussed above; however, it does provide a baseline condition to compare and measure the effects of all the build alternatives. No direct or indirect impacts to listed species or their habitats are expected with the no build alternative.

C. Alternatives Evaluation

The results of the corridor evaluation indicated that Corridor Alignment 1 had the least environmental impacts, the best effect on traffic alleviation, met the project's purpose and need better than the other corridors, and was the least costly for construction. The table below from the "Corridors Alternative Evaluation Summary Report" shows the overall rankings of each corridor considering each of the evaluated parameters:



20% Relative Weight
 .40 Resulting Score

Evaluation Parameter Corridor		40%		20%		30%		10%	
	Purpose and Need		Traffic		Environmental		Cost		Final Rank (Score)
1	1	<div><div></div></div> .40	1	<div><div></div></div> .20	3	<div><div></div></div> .60	4	<div><div></div></div> .40	1 (1.60)
2	3	<div><div></div></div> 1.20	3	<div><div></div></div> .20	5	<div><div></div></div> 1.20	5	<div><div></div></div> .50	3 (3.10)
3	2	<div><div></div></div> .80	5	<div><div></div></div> .20	3	<div><div></div></div> .90	6	<div><div></div></div> .60	2 (2.50)
4	5	<div><div></div></div> 2.00	3	<div><div></div></div> .80	2	<div><div></div></div> 1.20	1	<div><div></div></div> .10	5 (4.10)
5	6	<div><div></div></div> 2.40	5	<div><div></div></div> .80	1	<div><div></div></div> .30	2	<div><div></div></div> .20	4 (3.70)
6	4	<div><div></div></div> 1.60	1	<div><div></div></div> .80	6	<div><div></div></div> 1.80	3	<div><div></div></div> .30	5 (4.50)

(Metric, 2011 – Page 38)

Additional analysis was then conducted on Alignments 1 & 2 since they were ranked similarly. Both corridors received similar rankings after this additional analysis and both moved forward for further evaluation. The field assessments described in this ESBA were therefore conducted on both Corridor Alignment 1 and Corridor Alignment 2 to determine the preferred alternative.

D. Direct impacts

1. Blackwater River Floodplain

Both alignments cross the Blackwater River and its floodplain area. In order to minimize direct, secondary, and long-term impacts, the wetlands delineated within the floodplain area and the river will be bridged. At the start of the bridge, a retaining wall will be constructed and the work on the bridge will continue from the retaining wall. The maximum amount of stormwater possible, given the land elevation at the start of the bridge south of the river, will be captured from the roadway surface and conveyed to stormwater ponds located to the north and south of the floodplain area to minimize runoff into the river or the wetlands below the bridge. The stormwater ponds will provide increased capacity to meet FDEP OFW discharge requirements. Pilings will be placed to limit direct impacts to T&E species, whenever possible.

2. Gulf Sturgeon Critical Habitat

Both alignments traverse the Blackwater River, which is critical habitat for the Gulf sturgeon. All construction methods will be consistent with the “Construction Special Provisions – Sturgeon Protection Guidelines” (Appendix B). As discussed above, the construction of the bridge over the Blackwater River will be conducted during non-migratory times of year for the Gulf sturgeon to avoid direct impacts to individuals. To minimize secondary/indirect impacts,



the stormwater design will maintain the existing water quality. The bridge construction will also allow for unimpeded migration upstream to other critical habitat areas. Piling placement will be considered carefully and it may not be necessary to place any pilings within the stream itself, thus avoiding any impediment to the migratory pathway. Long-term maintenance of the bridge structure and associated stormwater treatment systems will ensure that there will be no significant long term impacts to Gulf sturgeon critical habitat. The project is not likely to adversely modify the critical habitat unit.

3. Reticulated Flatwoods Salamander Critical Habitat

Both alignments traverse critical habitat of the reticulated flatwoods salamander. In order to minimize direct harm to individuals, the alternative alignments were shifted south of the originally proposed locations to avoid the highest quality breeding pond areas. The alignments were shifted to roughly parallel the power line easement on the southernmost edge of the critical habitat unit, which is already a disturbed linear feature traversing this area. In an effort to minimize direct impact to the critical habitat unit and secondary impacts to the breeding ponds, the critical habitat and pond area traversed by the alignments will be bridged. Stormwater treatment systems will convey all runoff from the bridge to stormwater ponds to avoid and minimize impacts to wetlands and water quality under the bridge. The project is not likely to adversely modify the critical habitat unit.

4. Clear Creek

Both alternatives cross Clear Creek and its floodplain area. In order to minimize direct, indirect, and long-term impacts, the open water portion of the creek and a portion of the floodplain will be bridged. The bridge length was determined based on the analysis conducted for the Bridge Hydraulics Report (Metric, 2012). The primary goal of the bridge is to reduce upstream flooding and to allow the creek to flow unobstructed to receiving waterbodies. Bridging the entire floodplain is not feasible since the length of the bridge over the Blackwater River and the reticulated flatwoods salamander critical habitat unit significantly increased in length resulting in an increase in overall projected construction costs. The bridge over Clear Creek will help to minimize impacts to the creek bed, which provides habitat for many aquatic organisms. Stormwater will be captured from the roadway surface and conveyed to stormwater ponds located to the north and south of the floodplain area to minimize runoff into the creek or the wetlands below the bridge. The bridge over Clear Creek will be 160 ft. long, 100 feet wide (in two separate sections), and 28.25 ft. above the ground. The canopy and some shrubs will be impacted long term by the bridges and groundcover will be impacted during construction. The height and width of the proposed bridges are adequate to provide light penetration to the ground and allow for groundcover regrowth and survival.

5. Gopher tortoise

Both alignments traverse sandhill habitat that is appropriate for gopher tortoise and many potentially occupied burrows were located within the alignments. Alignment 1 is shorter than Alignment 2 and, therefore, will impact less potentially occupied gopher tortoise burrows than Alignment 2 (Figure 4 – T&E Species Map). Overall, there are 22 potentially occupied gopher tortoise burrows in the vicinity of Alignment 1 and 35 potentially occupied gopher tortoise



burrows in the vicinity of Alignment 2. Although there are potentially occupied burrows present, an additional 100% survey will be required prior to obtaining a relocation permit. Based on the newest FWC guidelines published in November, 2011, “[t]here are four options to address the presence of gopher tortoises on lands slated for development:

1. Avoid development,
2. Avoid destruction of tortoise burrows,
3. Relocate tortoises on-site (permit required), or
4. Relocate them off-site (permit required)” (<http://www.myFWC.com/license/wildlife/gopher-tortoise-permits/>).

Therefore, since no gopher tortoise incidental takes are allowed, FDOT will be required to avoid impacts to gopher tortoises during construction. The gopher tortoise impacts will be addressed prior to construction since the burrow survey must be conducted within 90 days of applying for a relocation permit.

E. Indirect and Cumulative Impacts

Indirect impacts are future impacts caused by or resulting from the proposed project that are reasonably certain to occur. These impacts may occur outside of the area directly affected by the proposed project. Potential secondary effects include increased noise, traffic, and development, which could potentially impact wildlife or a change in wildlife migration patterns. Cumulative effects include the effects of future state, local, or private actions that are reasonably certain to occur in the project area. Indirect, secondary, and cumulative impacts may result in increased fragmentation of wildlife habitat. In addition, the proposed roadway construction may result in increased wildlife mortality due to collisions with vehicles. Future federal actions that are unrelated to the proposed project are not considered in the determination of cumulative effects because they require a separate consultation in accordance with Section 7 of the Endangered Species Act.

1. Indirect Impacts

Indirect impacts are defined as those effects caused by the action but occurring in the future at a more distant location, but still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 CFR 1508.8 and 50 CFR 402.02). These induced actions are those that would not or could not occur except for the implementation of a project. These actions are often referred to as “but for” actions. The term indirect impact is often used interchangeably with the term “secondary impact.”

Indirect impacts for wetlands were evaluated during the Uniform Mitigation Assessment Methodology (UMAM) evaluation as described in the Wetland Evaluation Report. A number of factors were considered in the UMAM score for each alternative alignment (e.g., noise, introduction of weedy or invasive species, light emissions). These types of impacts would apply to both wetland and upland habitats and are described in this section. Many T&E species located within the alignment areas are wetland dependent, meaning that they utilize wetlands



for at least some portion of their life cycle. Avoidance, minimization, and mitigation measures for these species will reduce indirect impacts to these T&E species.

Other indirect impacts are possible due to increased noise levels, alternation of wildlife movement, and impacts to air and water pollutants. Noise levels are likely to increase for portions of the alignment north of the Blackwater River and east of SR 87 north since these areas are primarily agricultural and would not have road related noise generation in their existing condition. The exact effect of increased noise levels on a particular species is difficult to determine; however, noise level increases may have a minor impact on species reproductive patterns or foraging/roosting locations.

Wildlife crossing patterns may be minimally affected by construction of either alignment; however, wildlife movement is currently limited in the location of the alignments by the Blackwater River, Munson Highway, Whiting Field, and SR 87 north. The proposed alignments may result in additional fragmentation of wildlife movement potential, but there is still adequate land around the proposed alignments that is likely to remain undeveloped or in its existing land use. The proposed bridges will also allow for habitat connectivity beneath the bridge and will minimize indirect impacts to wildlife movement.

New and existing roadways have the ability to negatively impact waterways and wetlands due to increased runoff that may contain harmful pollutants. The design of the alignments will take the runoff into consideration and will adhere to State regulatory criteria to avoid and minimize impacts to aquatic systems. The project design will include a drainage and stormwater management system that would provide for pretreatment of stormwater runoff prior to discharge into any wetlands, Clear Creek or its tributaries, and Blackwater Creek and its tributaries. Due to the implementation of the stormwater design, indirect impacts to water quality will be minor as a result of either alternative alignment.

2. Cumulative Impacts

Cumulative impacts result from the total effect of the proposed project when added to other past, present, and reasonably foreseeable future projects or actions (40 CFR 1508.7 and 50 CFR 402.02). As discussed in Section II (Purpose of and Need for Project), in the case of the proposed project (which is defined as alternative alignments 1 and 2), the purpose and need for a roadway connecting US 90 with SR 87 north is in response to growth and development projects that have already taken place or are reasonably expected to occur and have necessitated a more direct and efficient hurricane evacuation route from coastal areas.

Most of the area around the project is rural, private property with active silvicultural stands and agricultural operations. Future changes to the land areas surrounding the road are difficult to quantify and assess since it must be determined what type of access (limited access or full access) will be constructed; however, the future land use map shows the land areas adjacent to the alignments zoned primarily as agriculture, public, and recreation/conservation. Development expansion will also be limited by the following:



- Whiting Field has buffers that cannot be encroached upon by development
- The majority of the property north of US 90 is in public ownership and is primarily developed
- The FDEP would likely object to any development of lands within the Florida Forever desired acquisition areas located north of the two alternative alignments
- Those undeveloped lands that are not protected by public ownership are located within designated floodplains, and as such, would not be developed

The combined level of cumulative impacts within the project area is expected to be low.

3. Mitigation

Avoidance and minimization of potential impacts to T&E species, T&E critical habitats, wetlands, and surface waters were central to both corridor and alignment development. Direct impacts to species critical habitat has been minimized with the use of bridges over the Blackwater River and the RFS2-Subunit A critical habitat unit. Potential impacts to the critical habitat unit have also been minimized by shifting the alignment to the southernmost edge of the critical habitat unit where the wetlands and uplands are disturbed. Further efforts may be made to minimize proposed species and wetland impacts during the design phase of the project. Once a preferred alternative alignment has been selected, potential species and wetland involvement may be further reduced by minor shifts of the actual roadway, if practicable. Direct and indirect wetland impacts will be minimized through appropriate stormwater design, and utilization of Best Management Practices (BMPs) at wetland and stream crossings.

Mitigation will be required for direct, as well as some indirect (as deemed necessary by FHWA, FDOT, US Army Corps of Engineers (USACOE), NFWFMD, and other appropriate resource agencies) wetland impacts. At this point in the project development, FDOT is not prepared to state how impacts to wetlands will be mitigated due to the varying types of resources that could be impacted. The degree, type, and location of mitigation that will be required will not be determined until permitting requirements for the preferred alignment are evaluated. The FDOT will reserve use of statute approved mitigation (Senate Bill 1986), mitigation banks located near the proposed project, or property donations once the efficiency and value of the mitigation options have been calculated. In many cases involving FDOT projects, wetland impacts are mitigated by purchasing mitigation credits from the NFWFMD via the Northwest Florida Umbrella, Watershed-based, Regional Mitigation Plan or "Umbrella Plan". The Umbrella Plan was established in 2006 by an agreement between NFWFMD and the USACOE (Jacksonville District). Operated as an in-lieu fee program, the Umbrella Plan is an outgrowth of the NFWFMD's responsibility under Florida Statutes to provide mitigation for FDOT impacts to wetlands regulated by federal and state code. The NFWFMD jurisdiction covers 7 major riverine watersheds, 16 counties, and extends from east of Tallahassee to west of Pensacola. With the Umbrella Plan, watershed resources and mitigation needs are identified up front in a comprehensive manner. The Umbrella Plan establishes a process by which wetland mitigation projects are strategically identified at a watershed scale, evaluated, and approved by consensus of the USACOE-led Interagency Review Team. Using a mitigation credit ledger, credits may be



used to offset future wetland impacts such as those potentially stemming from the SR 87 Connector PD&E project.

VI. CONCLUSION

A. Observed Species

The following species were observed within the alignments:

1. Federally Listed Species

a. Wildlife

No Federally listed wildlife species were observed during the field survey; however, critical habitats of the reticulated flatwoods salamander and Gulf sturgeon were located within the alignments.

b. Plants

No Federally listed plant species were observed during the field surveys or documented in the Florida Elements of Occurrence data.

2. State Listed Species

1. Wildlife

a. Gopher Tortoise - State Threatened species

2. Plants

- a. Pine-woods Bluestem – State Threatened
- b. Hairy Wild Indigo – State Threatened
- c. Curtiss' Sandgrass – State Threatened
- d. Spoon-leaved Sundew – State Threatened
- e. Panhandle Lily – State Endangered
- f. Primrose-flower Butterwort – State Endangered
- g. Yellow Fringed Orchid – State Threatened
- h. Fernald's Pogonia – State Threatened
- i. Small-flowered Meadowbeauty – State Endangered
- j. White Topped Pitcher Plant – State Endangered
- k. Parrot Pitcher Plant – State Threatened
- l. Gulf Purple Pitcher Plant – State Threatened

B. Avoidance, Minimization, Compensation, and Commitments

Both alignments traverse critical habitat of the Gulf sturgeon and the reticulated flatwoods salamander. ERC has coordinated with the USFWS and recommends that Best Management Practices (BMPs) are used during the construction to minimize direct or indirect / cumulative impacts to observed species. Specific measures to avoid and minimize direct and secondary/cumulative impacts to species, which have been approved in consultation with FDOT, include:

- The Blackwater River will be bridged and construction will be conducted during non-



spawning periods to avoid direct impacts to both Gulf sturgeon critical habitat and individuals.

- Gulf sturgeon guidelines for in-water work will be followed to minimize construction related impacts.
- The pond areas within the flatwoods salamander critical habitat unit will be bridged to reduce direct impacts to both the critical habitat unit and individuals.
- Secondary impacts to the flatwoods salamander habitat will be minimized by incorporating adequate stormwater treatment from the elevated roadways and treating stormwater in upland areas that are already disturbed by silviculture.
- Eastern indigo snake protective measures will be followed during construction to avoid impacts.
- Manatee protective measures will be followed during construction to avoid impacts.
- Gopher tortoise permitting will be conducted by FDOT prior to construction.

C. Species Determination of Effect

1. Federally Listed Wildlife Species

The **Gulf Sturgeon** is federally and state listed as a threatened species. The Blackwater River is designated as Gulf sturgeon critical habitat by the USFWS. No sturgeons were observed during the field surveys; however, appropriate habitat is present. FDOT will commit to following the USFWS Gulf sturgeon construction guidelines and will avoid in-water work from April through October. The project “may affect” the Gulf sturgeon.

The **Reticulated Flatwoods Salamander** is federally and state listed as an endangered species. The RFS-2, sub-unit A critical habitat unit is traversed by both alignments 1 and 2. Appropriate habitat is present, but in the location of the alignments, the habitat is degraded. Wetlands in the critical habitat unit will be bridged by both alignments. Due to the presence of the critical habitat, the observed appropriate habitat within the alignments, and the efforts proposed by FDOT to minimize direct impacts to the critical habitat, the project “may affect” the reticulated flatwoods salamander.

The **Eastern Indigo Snake** is listed by both the USFWS and the FWC as threatened. Eastern indigo snakes are considered commensals of the gopher tortoise, wintering over in their burrows in the uplands, but foraging in more mesic to hydric habitats. There is a moderate potential for the indigo snake due to the amount of undeveloped land within the alignment; however, the USFWS Standard Measures for the Eastern Indigo will be implemented during the construction phase. Due to the implementation of the USFWS measures the project “may affect, but is not likely to adversely affect” the eastern indigo snake.

The **Wood Stork** is listed as endangered by both the USFWS and the FWC. There are no wood stork rookeries documented in proximity to the alignments (FWC, 1999) and no wood storks were observed during field surveys. The closest rookery is 12 miles away (FWC, 1999) and the closest Core Foraging Area (CFA) is 142 miles east of the alignments in Gadsden County (FWC, 2010). The project will have “no effect” on the wood stork.



Red-cockaded Woodpecker is federally listed as endangered and a state species of special concern. There are no documented red-cockaded woodpecker populations within the vicinity of the alignments (FWC, 2005) and no woodpeckers or signs of woodpeckers were observed during field surveys. The alignments lacked mature pine trees that would be suitable for red cockaded woodpecker populations and the potential for this species is limited. The project will have “no effect” on the red-cockaded woodpecker.

Several species of **freshwater mussels** are federally and state listed as T&E throughout north Florida and eight additional species are proposed for listing under the Endangered Species Act (ESA). The Blackwater River and Clear Creek are not listed as critical habitat for any currently listed or proposed mussel species and there are currently no freshwater mussel species listed as threatened or endangered in Santa Rosa County. The project will have “no effect” on freshwater mussel species.

Florida Manatee is listed as endangered by both the USFWS and the FWC. Manatees occur within Santa Rosa County according to the USFWS and FWC; however, there is no critical habitat within the vicinity of the alternative alignments. This species was not located during the field surveys and it is unlikely that the manatees would travel upstream into the Blackwater River in the vicinity of the project. The USFWS “Standard Manatee Conditions for In-Water Work” will be followed during construction and, therefore, the project “may affect, but is not likely to adversely affect” manatees.

2. State Listed Wildlife

The **gopher tortoise** is listed by the FWC as threatened. Gopher tortoise burrows, both “potentially occupied burrows” and “abandoned burrows”, were identified in the alignments. Any gopher tortoises located within 25 feet of an area proposed for development must be relocated according to FWC requirements. The FWC encourages that commensal species such as the gopher frog (*Rana capito*) be relocated along with gopher tortoise. If federally listed commensal species such as the Eastern indigo snake are located during relocation surveys, additional coordination will be required with the USFWS. Since gopher tortoise burrows and habitat found within alternative alignments and associated buffers may be impacted, FWC gopher tortoise permitting guidelines pertaining to surveying, excavating, and relocating will be followed prior to construction, as appropriate. Since tortoises and commensal species will be relocated to suitable habitat, the project “may affect, but is not likely to adversely affect” the gopher tortoise or the gopher frog. Further coordination with FWC will be conducted prior to project construction.

The **Southeastern American Kestrel** is a state threatened falcon species found in open pine habitats, sandhills, prairies and pastures. The species utilizes tall dead trees or utility poles for cavity nest sites. Suitable habitat is limited in the project area and no kestrels were observed during the field study. The project will have “no effect” on the kestrel.



The 1) tricolored heron, 2) snowy egret, 3) white ibis, and 4) little blue heron are **wading birds** that are state listed species of special concern. These wading birds feed in permanently and seasonally flooded wetlands, marshes and swamps. Although there are no documented rookeries within the alignment areas and no species were observed during the field surveys, wetland impacts are proposed in areas that could be utilized as wading bird habitat. Because of the potential for wetland impacts, the project “may affect, but is not likely to adversely affect” wading birds.

While the **Florida Black Bear** was not observed during the field survey, it should be noted that portions of the alignments are within the secondary range of a Florida black bear population (Eglin). The Florida black bear is a state listed threatened species. There is an abundance of habitat in the vicinity of the alignment areas to serve as potential habitat for the black bear and therefore the project will have “no effect” on this species.

3. State Listed Plant Species

The following plant species were observed within the alignments during the field surveys: pine-woods bluestem, hairy wild indigo, Curtiss’ sandgrass, spoon-leaved sundew, Panhandle lily, primrose-flowered butterwort, yellow fringe orchid, Fernald’s pogonia, small-flowered meadowbeauty, white-top pitcherplant, parrot pitcherplant, and Gulf purple pitcherplant. The majority of these species are wetland dependent species and were found in locations that are proposed for bridging such as the Blackwater River and Clear Creek floodplains and the RFS2 critical habitat unit. The FWC, DACS and the EDAC are being notified that FDOT as owner is allowing for salvaging by others of affected protected plants on this project prior to construction in accordance with state law (Chapter 581.185, Florida Statutes), pending their receipt of the appropriate permits. ***It is our conclusion that protected plants potentially occurring within the project corridor will be impacted and may be salvaged in accordance with state law (Chapter 581.185, F.S.).***

4. Other Species (not listed)

Bald Eagle

The bald is a water-dependent species and is found near coastal areas, bays, rivers, lakes, or other bodies of water that provide concentrations of food sources. Suitable habitat is present throughout the project area, but the bald eagle has not been observed along the Blackwater River, Clear Creek, or any of the wetlands associated with these waterbodies. Active eagle nests are present on the eastern shoreline of Escambia Bay approximately 8 miles west of Milton (Figure 8) and no nests would be disturbed during construction activities. It is anticipated that the project will not affect the bald eagle.



VII. REFERENCES

- Center for Plant Conservation, Missouri Botanical Garden. 1995. An Action Plan to Conserve the Native Plants of Florida. Southeast Environmental Research Program, Florida International University and Center for Plant Conservation.
- Chafin, Linda G. 2000. Field Guide to the Threatened and Endangered Plants of Florida. Florida Natural Areas Inventory, Tallahassee, Florida.
- Clewell, A.F. 1985. Guide to the Vascular Plants of the Florida Panhandle. University Press of Florida, Gainesville, Florida.
- Clewell, A.F. 1985a. Natural Setting and Vegetation of the Florida Panhandle. Florida State University Press, Tallahassee, Florida.
- Coile, Nancy. 1996. Notes on Florida's Endangered and Threatened Plants. Florida Department of Agriculture & Consumer Services, Division of Plant Industry. Gainesville, Florida.
- Ewel, K. C. 1990. Ecosystems of Florida. University Presses of Florida. Gainesville, Florida.
- Florida Fish and Wildlife Conservation Commission. 2011. Gopher Tortoise Permitting Guidelines: *Gopherus polyphemus*. Tallahassee, Florida.
- Florida Game and Fresh Water Fish Commission Nonage Wildlife Report. Technical Report no. 7. Summary Report on the Vascular Plants, Animals and Plant Communities Endemic to Florida. June 1989.
- Florida Natural Areas Inventory/The Nature Conservancy. 1990. Matrix of Habitats and Distribution by County of Threatened /Endangered Species in Florida.
- Florida Natural Areas Inventory. 1990. Guide to Natural Communities. Florida Department of Environmental Regulation. Office of Environmental Services, Tallahassee, Florida.
- Florida Natural Areas Inventory (FNAI). 2010. Guide to the Natural Communities of Florida: 2010 Edition. Florida Natural Areas Inventory, Tallahassee, Florida.
- Florida Natural Areas Inventory. 2001. Field Guide to the Threatened and Endangered Animals of Florida. Florida Department of Environmental Regulation. Office of Environmental Services, Tallahassee, Florida.
- Gopher Tortoise Permits. 2011. Florida Fish and Wildlife Conservation Commission. December 7, 2011. < <http://www.myFWC.com/license/wildlife/gopher-tortoise-permits/> >



Godfrey, R. K. 1988. Trees, Shrubs and Woody Vines of Northern Florida and Adjacent Georgia and Alabama. University of Georgia Press, Athens, Georgia.

Metric Engineering. 2011. Corridor Alternatives Evaluation Summary Report, SR 87 Connector PD&E Study. Chipley, Florida.

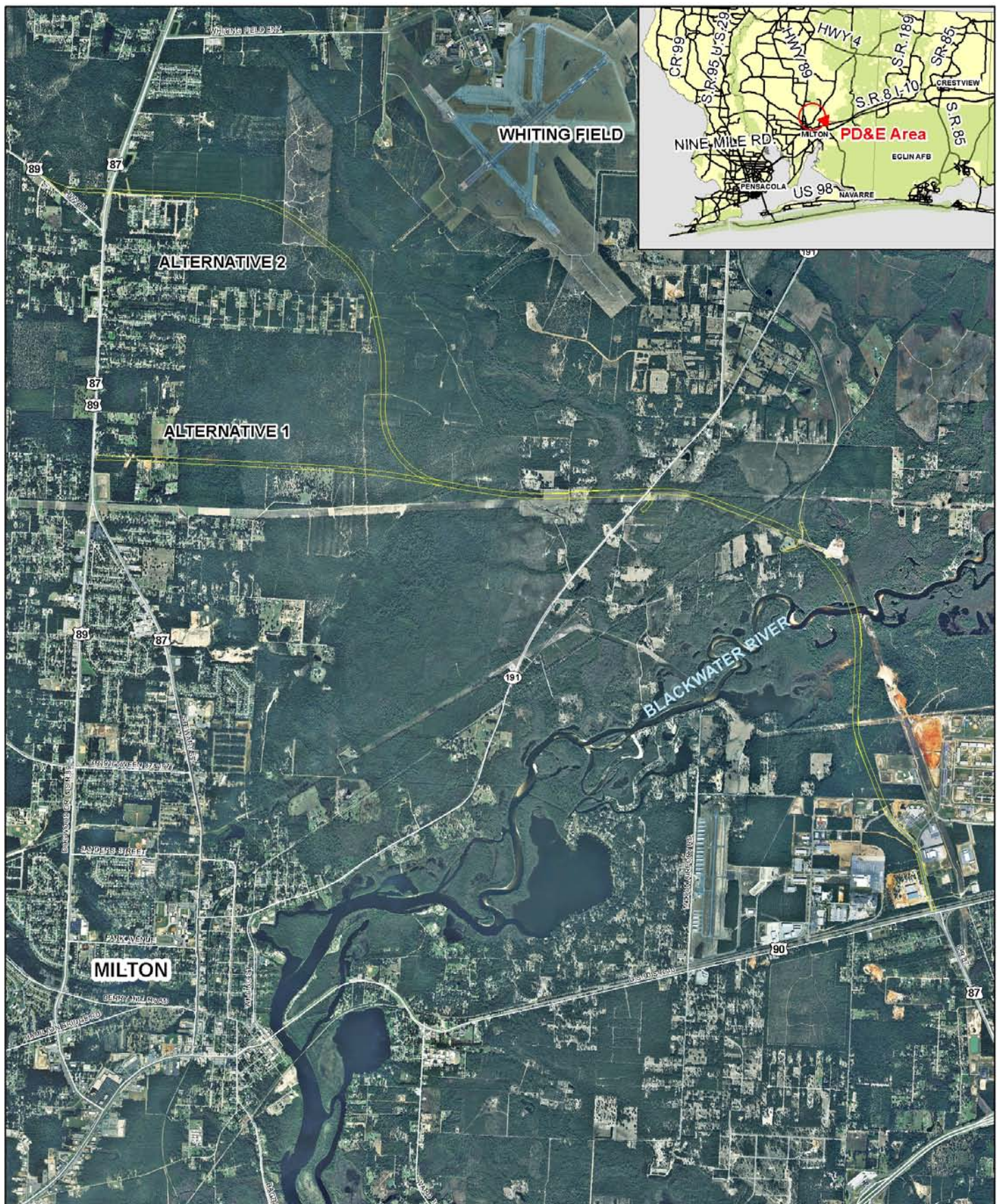
Metric Engineering. 2012. Bridge Hydraulics Report, SR 87 Connector PD&E Study. Chipley, Florida.

Tobe, J. D., K. C. Burks, R. W. Cantrell, M. A. Garland, D. W. Hall, P. Wallace, G. Anglin, G. Nelson, J. R. Cooper, D. Bickner, K. Gilbert, N. Aymond, K. Greenwood and N. Raymond. 1998. Florida Wetland Plants: An Identification Manual. University of Florida, Institute of Food and Agricultural Sciences.

U.S. Department of Agriculture, Natural Resources Conservation Service. Soil Survey Geographic (SSURGO) database for Santa Rosa County, Florida shapefile. USDA, NRCS, Texas. February 1, 2010. <http://soildatamart.nrcs.usda.gov/>

Wood, Don A. 1996. Florida's Endangered Species, Threatened Species and Species of Special Concern. Bureau of Nongame Wildlife, Florida game and Fish Water Fish Commission.

Wunderlin, R. 1998. Guide to the Vascular Plants of Florida. University of Florida Press, Gainesville, Florida.



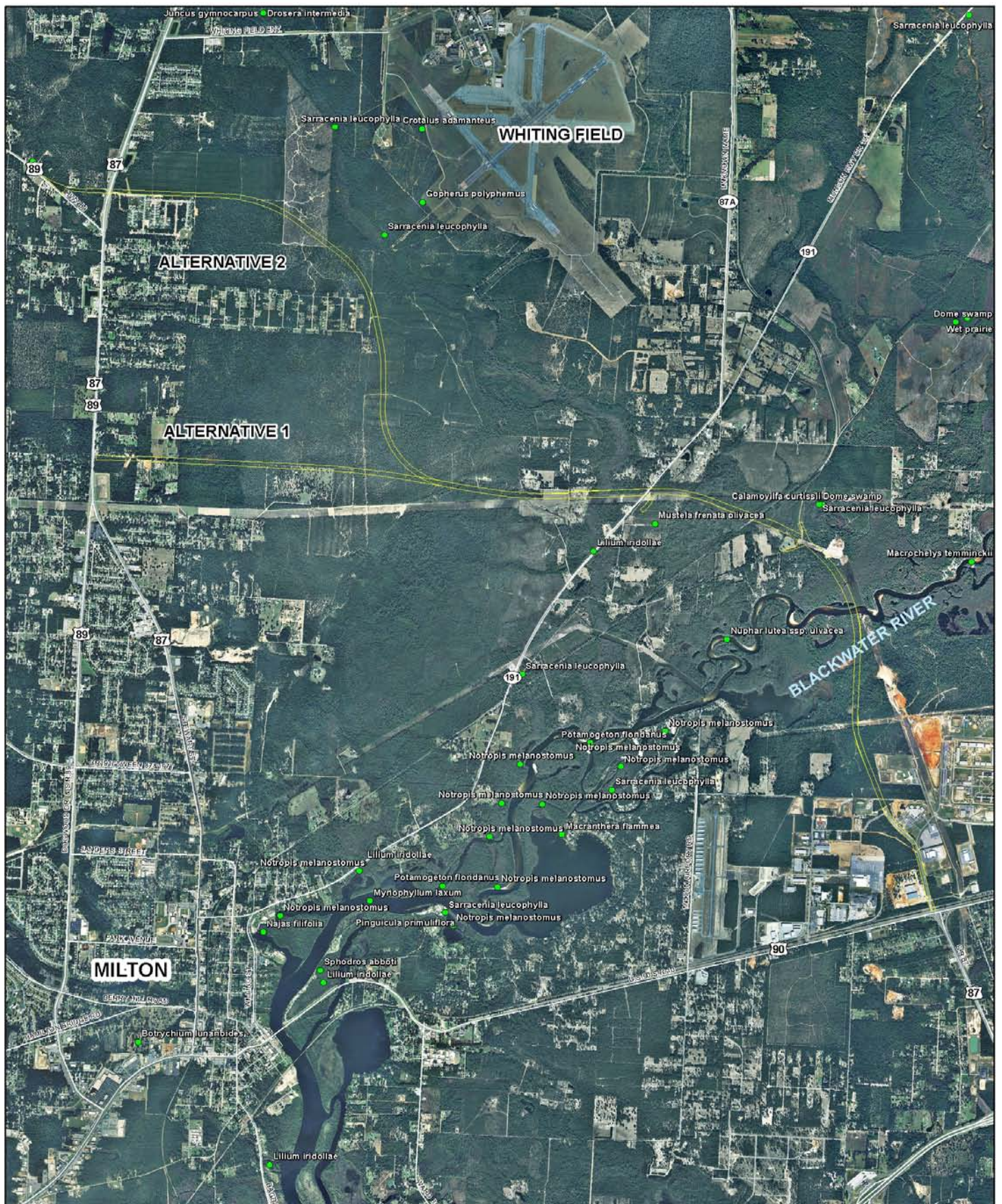
Legend:

 Alignments



0 2,000 4,000 8,000 12,000 Feet

**Figure 1 Location Map: SR 87 Alignments
SR 87 PD&E Study
FDOT**



Legend:

● FNAI Element Occurrence Data - 2009

— Alignments



1:48,000
2010 True
Color Aerials

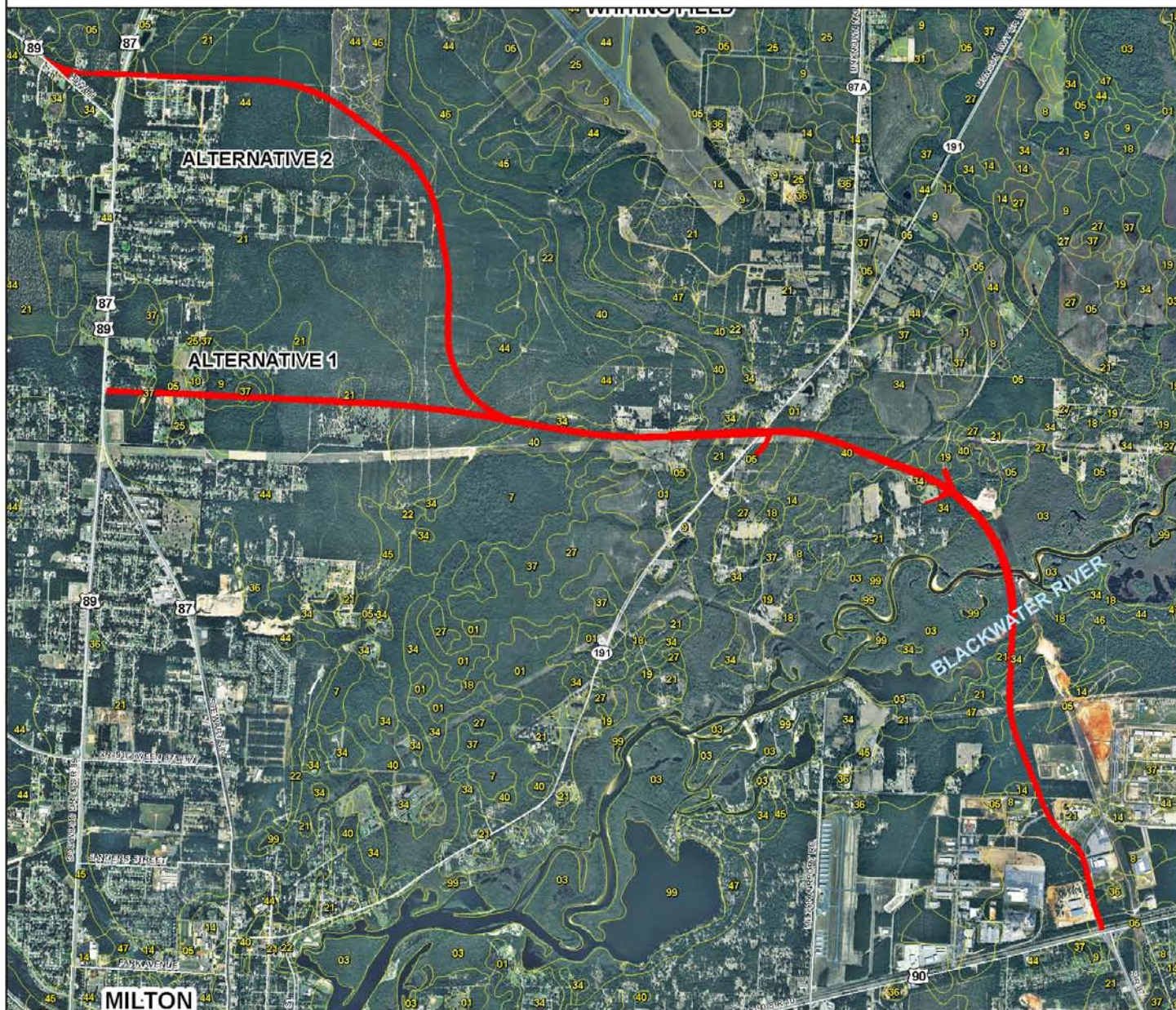
0 2,000 4,000 8,000 12,000 Feet

**Figure 2 FNAI Element Occurrence Map
SR 87 PD&E Study
FDOT**

Soils Legend

01, ALBANY LOAMY SAND, 0 TO 5 PERCENT SLOPES
 02, ANGIE VARIANT LOAM
 03, BIBB-KINSTON ASSOCIATION
 04, BOHICKET AND HANDSBORO SOILS
 05, BONIFAY LOAMY SAND, 0 TO 5 PERCENT SLOPES
 10, DOTHAN FINE SANDY LOAM, 5 TO 8 PERCENT SLOPES
 11, ESCAMBIA FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES
 12, ESTO LOAM, 2 TO 5 PERCENT SLOPES
 14, FUQUAY LOAMY SAND, 0 TO 5 PERCENT SLOPES
 15, FUQUAY LOAMY SAND, 5 TO 8 PERCENT SLOPES
 16, GARCON LOAMY FINE SAND
 17, GULLIED LAND
 18, JOHNS FINE SANDY LOAM
 19, KALMIA LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES
 21, LAKELAND SAND, 0 TO 5 PERCENT SLOPES
 22, LAKELAND SAND, 5 TO 12 PERCENT SLOPES
 24, LEON SAND, 0 TO 2 PERCENT SLOPES
 25, LUCY LOAMY SAND, 0 TO 5 PERCENT SLOPES
 27, LYNCHBURG FINE SANDY LOAM
 29, MULAT LOAMY FINE SAND
 30, ORANGEBURG SANDY LOAM, 0 TO 2 PERCENT SLOPES

31, ORANGEBURG SANDY LOAM, 2 TO 5 PERCENT SLOPES
 32, ORANGEBURG SANDY LOAM, 5 TO 8 PERCENT SLOPES
 33, ORTEGA SAND, 0 TO 5 PERCENT SLOPES
 34, PACTOLUS LOAMY SAND, 0 TO 5 PERCENT SLOPES
 36, PITS
 37, RAINS FINE SANDY LOAM
 38, RED BAY SANDY LOAM, 0 TO 2 PERCENT SLOPES
 40, RUTLEGE LOAMY SAND
 42, TIFTON SANDY LOAM, 2 TO 5 PERCENT SLOPES
 44, TROUP LOAMY SAND, 0 TO 5 PERCENT SLOPES
 45, TROUP LOAMY SAND, 5 TO 8 PERCENT SLOPES
 46, TROUP LOAMY SAND, 8 TO 12 PERCENT SLOPES
 47, TROUP-ORANGEBURG-COWARTS COMPLEX, 5 TO 12 PERCENT SLOPES
 48, URBAN LAND
 51, MEADOWBROOK FINE SAND
 54, FOXWORTH SAND, 0 TO 5 PERCENT SLOPES
 7, DOROVAN-PAMLICO ASSOCIATION
 8, DOTHAN FINE SANDY LOAM, 0 TO 2 PERCENT SLOPES
 9, DOTHAN FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES
 99, WATER



Legend:



Alignments



NRCS Soils (Soil Survey of Santa Rosa County, 1977)

N
 1:48,000
 2010 True
 Color Aerials

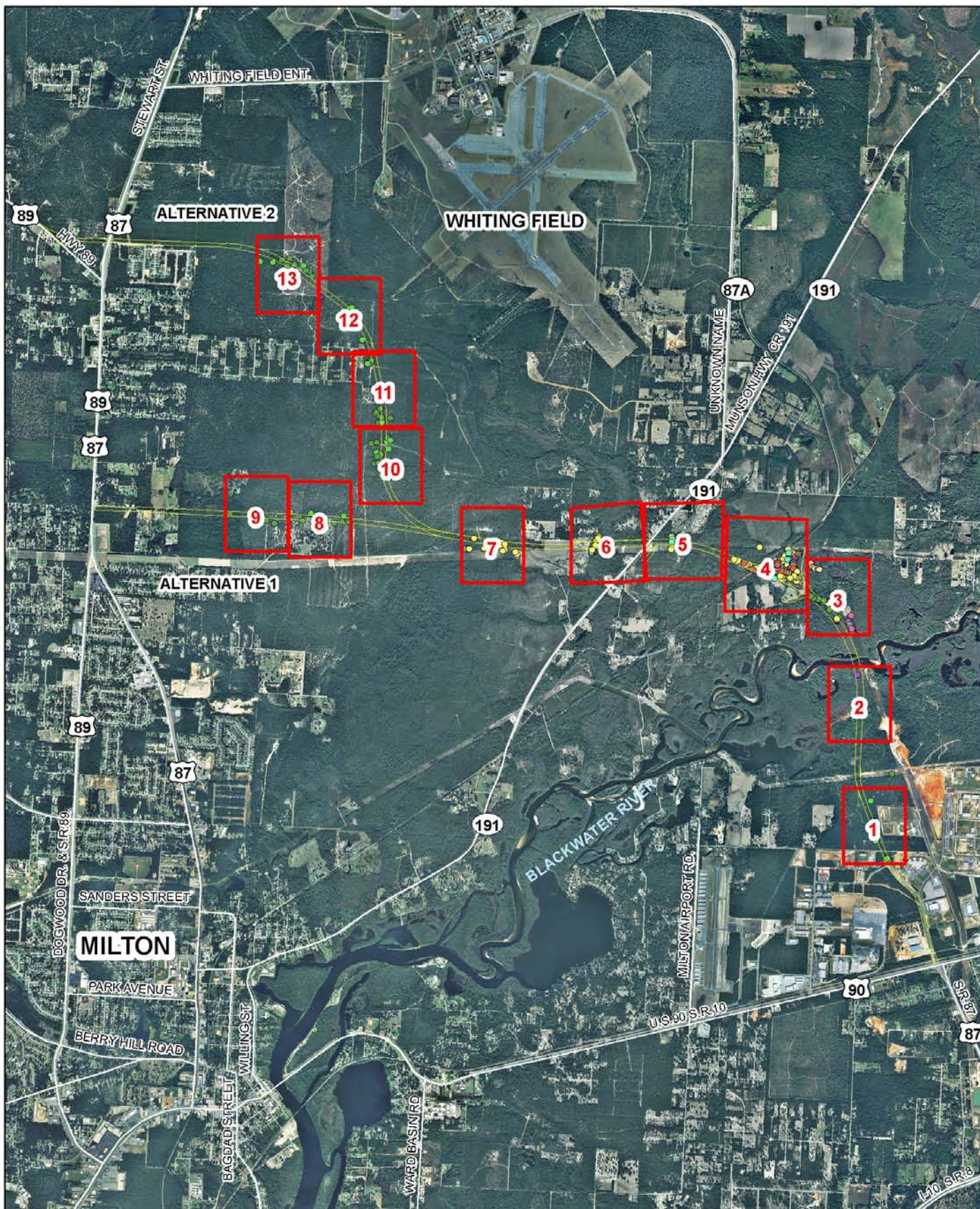
0 2,000 4,000 8,000 12,000 Feet

**Figure 3 NRCS Soils
 SR 77 PD&E Study
 FDOT**



Ecological Resource
 Consultants, Inc.

dv 9.5.12
 ERC# 09-143



- Legend:**
- Alignments
 - Map Key Sheets
 - Observed T&E Species
 - Andropogon arcuatus
 - Baptisia calycosa
 - Calamovilfa curtisii
 - Cleistes bifaria
 - Drosera intermedia
 - Gopherus polyphemus: PO
 - Gopherus polyphemus: A
 - Lilium indolae
 - Pinguicula primuliflora
 - Platanthera ciliaris
 - Rhexia parviflora
 - Sarracenia leucophylla
 - Sarracenia psittacina
 - Sarracenia rosea majds

Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 0.5 1 2 Miles

N
1:48,000
2010 True
Color Aerials

**Figure 4.1 T&E Species Map Key
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignments |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



1:3,000

2010 True
Color Aerials

Figure 4.2.1 T&E Species Map 1 SR 87 PD&E Study FDOT



dv 9.5.12
ERC# 09-143



Legend:

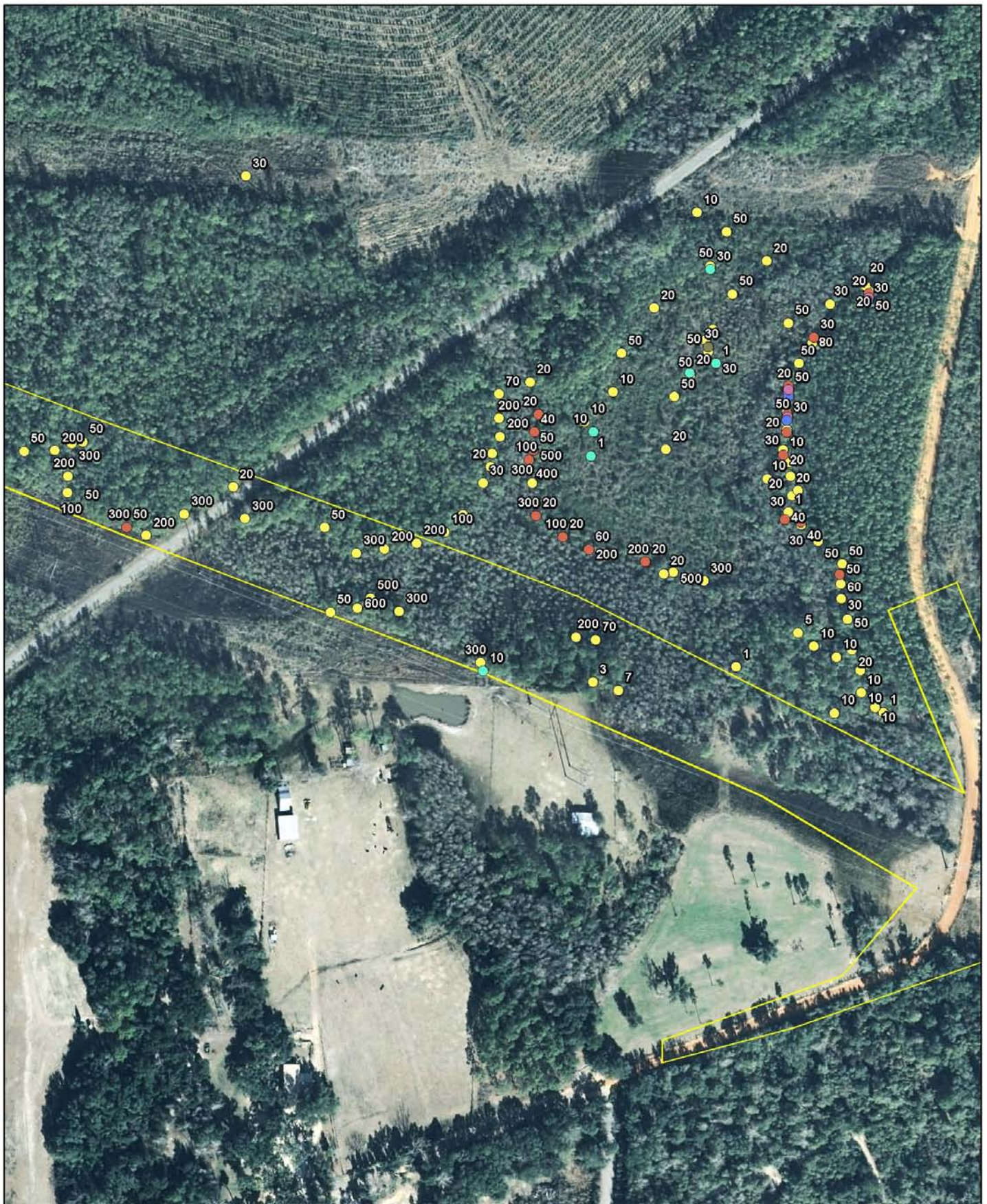
- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignments |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet

N
1:3,000
2010 True
Color Aerials

**Figure 4.2.3 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|--|---|---|
| ● <i>Andropogon arcuatus</i> | ● <i>Gopherus polyphemus</i> : PO* | ● <i>Rhexia parviflora</i> |
| ● <i>Baptisia calycosa</i> | ● <i>Gopherus polyphemus</i> : A* | ● <i>Sarracenia leucophylla</i> |
| ● <i>Calamovilfa curtissii</i> | ● <i>Lilium indolae</i> | ● <i>Sarracenia psittacina</i> |
| ● <i>Cleistes bifaria</i> | ● <i>Pinguicula primuliflora</i> | ● <i>Sarracenia rosea</i> |
| ● <i>Drosera intermedia</i> | ● <i>Platanthera ciliata</i> | — Alignments |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



1:3,000
2010 True
Color Aerials

**Figure 4.2.4 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

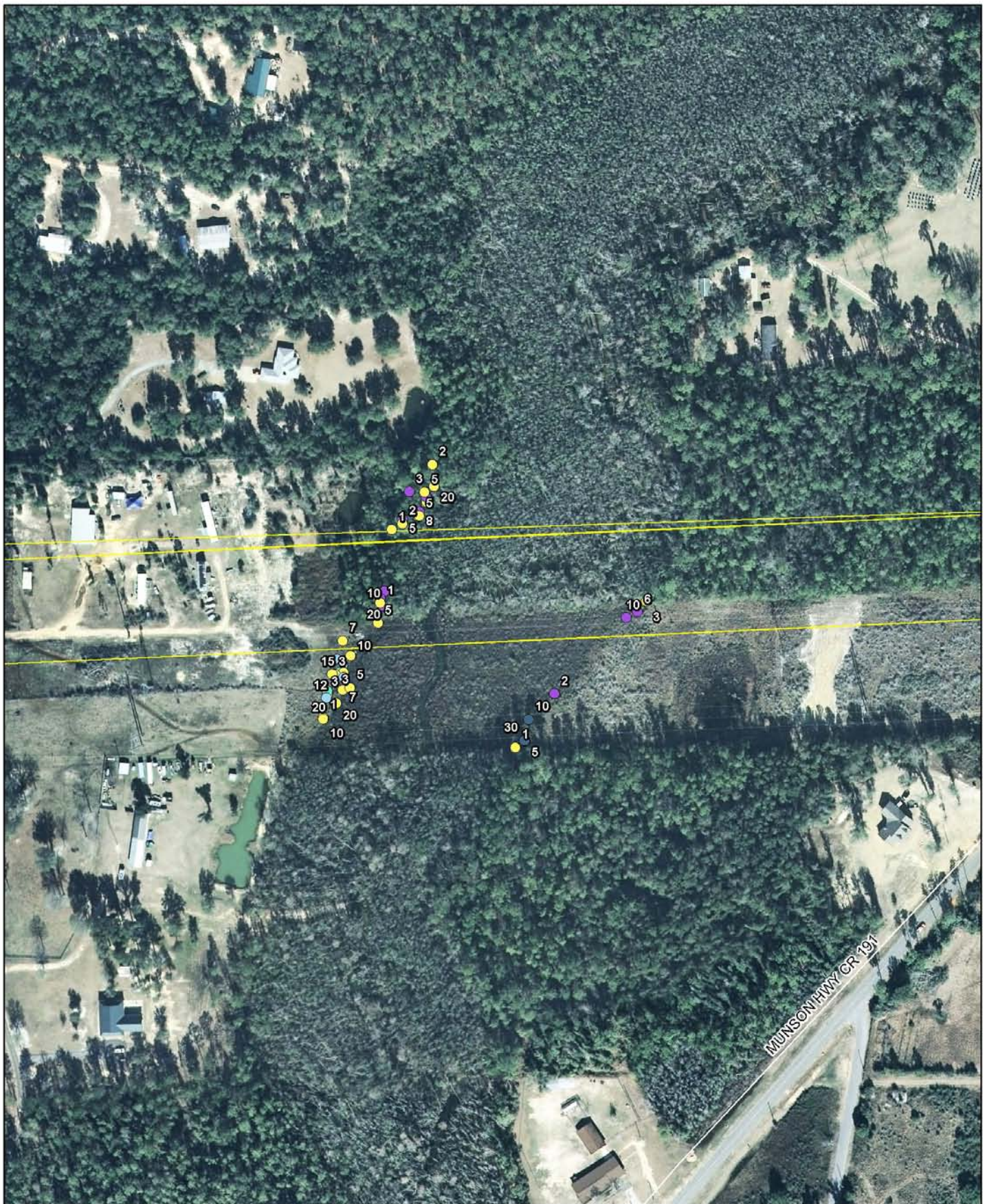
- | | | |
|---|---|---|
| ● <i>Andropogon arcuatus</i> | ● <i>Gopherus polyphemus</i> : PO* | ● <i>Rhexia parviflora</i> |
| ● <i>Baptisia calycosa</i> | ● <i>Gopherus polyphemus</i> : A* | ● <i>Sarracenia leucophylla</i> |
| ● <i>Calamovilfa curtisii</i> | ● <i>Lilium indolae</i> | ● <i>Sarracenia psittacina</i> |
| ● <i>Cleistes bifaria</i> | ● <i>Pinguicula primuliflora</i> | ● <i>Sarracenia rosea</i> |
| ● <i>Drosera intermedia</i> | ● <i>Platanthera ciliata</i> | — Alignments |

*Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet

N
 1:3,000
 2010 True
 Color Aerials

**Figure 4.2.5 T&E Species Map
 SR 87 PD&E Study
 FDOT**



Legend:

- | | | |
|--|---|---|
| ● <i>Andropogon arcuatus</i> | ● <i>Gopherus polyphemus</i> : PO* | ● <i>Rhexia parviflora</i> |
| ● <i>Baptisia calycosa</i> | ● <i>Gopherus polyphemus</i> : A* | ● <i>Sarracenia leucophylla</i> |
| ● <i>Calamovilfa curtissii</i> | ● <i>Lilium indolae</i> | ● <i>Sarracenia psittacina</i> |
| ● <i>Cleistes bifaria</i> | ● <i>Pinguicula primuliflora</i> | ● <i>Sarracenia rosea</i> |
| ● <i>Drosera intermedia</i> | ● <i>Platanthera ciliata</i> | — Alignments |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

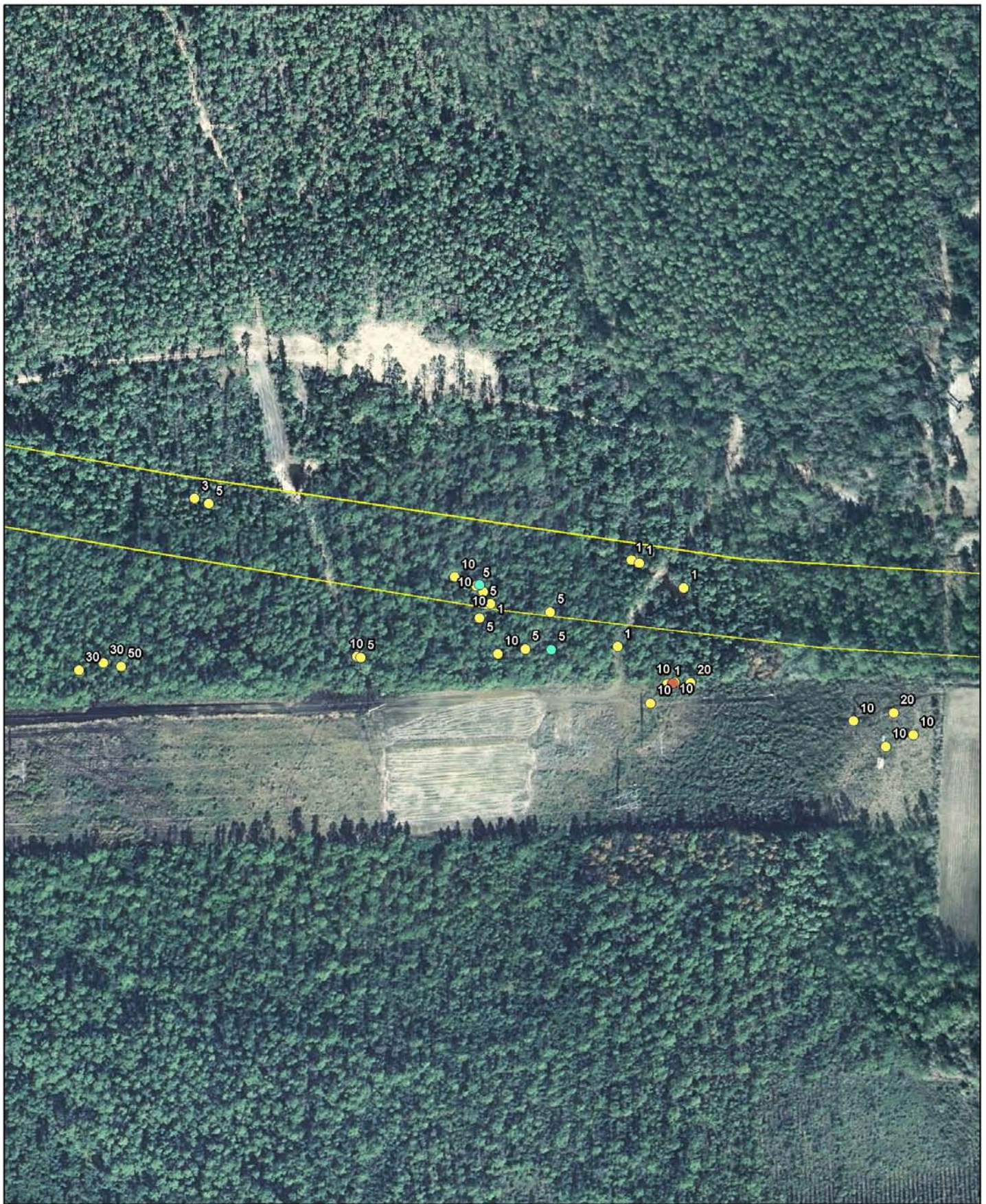
0 200 400 800 Feet



1:3,000

2010 True
Color Aerials

**Figure 4.2.6 T&E Species Map
 SR 87 PD&E Study
 FDOT**



Legend:

- | | | |
|---|---|--|
| ● Andropogon arcuatus | ● Gopherus polyphemus: PO* | ● Rhexia parviflora |
| ● Baptisia calycosa | ● Gopherus polyphemus: A* | ● Sarracenia leucophylla |
| ● Calamovilfa curtissii | ● Lilium indolae | ● Sarracenia psittacina |
| ● Cleistes bifaria | ● Pinguicula primuliflora | ● Sarracenia rosea |
| ● Drosera intermedia | ● Platanthera ciliata | — Alignments |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet

N
1:3,000
2010 True
Color Aerials

**Figure 4.2.7 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignment 1 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

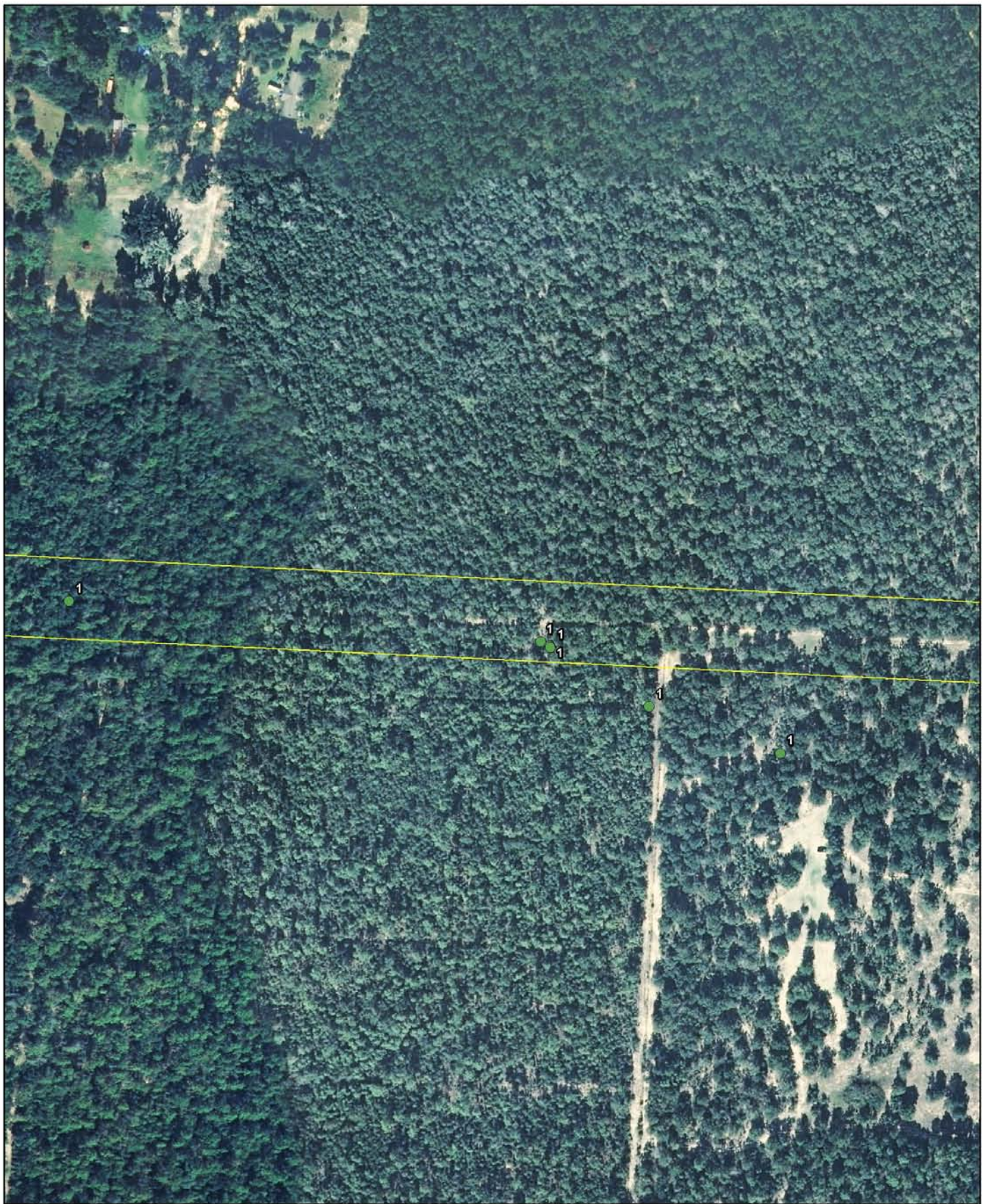
0 200 400 800 Feet



1:3,000

2010 True
Color Aerials

Figure 4.2.8 T&E Species Map SR 87 PD&E Study FDOT



Legend:

- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignment 1 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



1:3,000
2010 True
Color Aerials

**Figure 4.2.9 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|---|---|--|
| ● Andropogon arcuatus | ● Gopherus polyphemus: PO* | ● Rhexia parviflora |
| ● Baptisia calycosa | ● Gopherus polyphemus: A* | ● Sarracenia leucophylla |
| ● Calamovilfa curtissii | ● Lilium indolae | ● Sarracenia psittacina |
| ● Cleistes bifaria | ● Pinguicula primuliflora | ● Sarracenia rosea |
| ● Drosera intermedia | ● Platanthera ciliata | — Alignment 2 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



1:3,000

2010 True
Color Aerials

**Figure 4.2.10 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|---|---|--|
| ● Andropogon arcuatus | ● Gopherus polyphemus: PO* | ● Rhexia parviflora |
| ● Baptisia calycosa | ● Gopherus polyphemus: A* | ● Sarracenia leucophylla |
| ● Calamovilfa curtissii | ● Lilium indolae | ● Sarracenia psittacina |
| ● Cleistes bifaria | ● Pinguicula primuliflora | ● Sarracenia rosea |
| ● Drosera intermedia | ● Platanthera ciliata | — Alignment 2 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



2010 True
Color Aerials

Figure 4.2.11 T&E Species Map SR 87 PD&E Study FDOT



Legend:

- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignment 2 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

0 200 400 800 Feet



2010 True
Color Aerials

**Figure 4.2.12 T&E Species Map
SR 87 PD&E Study
FDOT**



Legend:

- | | | |
|-----------------------|--------------------------|------------------------|
| Andropogon arcuatus | Gopherus polyphemus: PO* | Rhexia parviflora |
| Baptisia calycosa | Gopherus polyphemus: A* | Sarracenia leucophylla |
| Calamovilfa curtissii | Lilium indolae | Sarracenia psittacina |
| Cleistes bifaria | Pinguicula primuliflora | Sarracenia rosea |
| Drosera intermedia | Platanthera ciliata | Alignment 2 |

* Numbers adjacent to the GPS points represent the number of individuals observed at each point.
Gopherus polyphemus: PO = potentially occupied and A = Abandoned

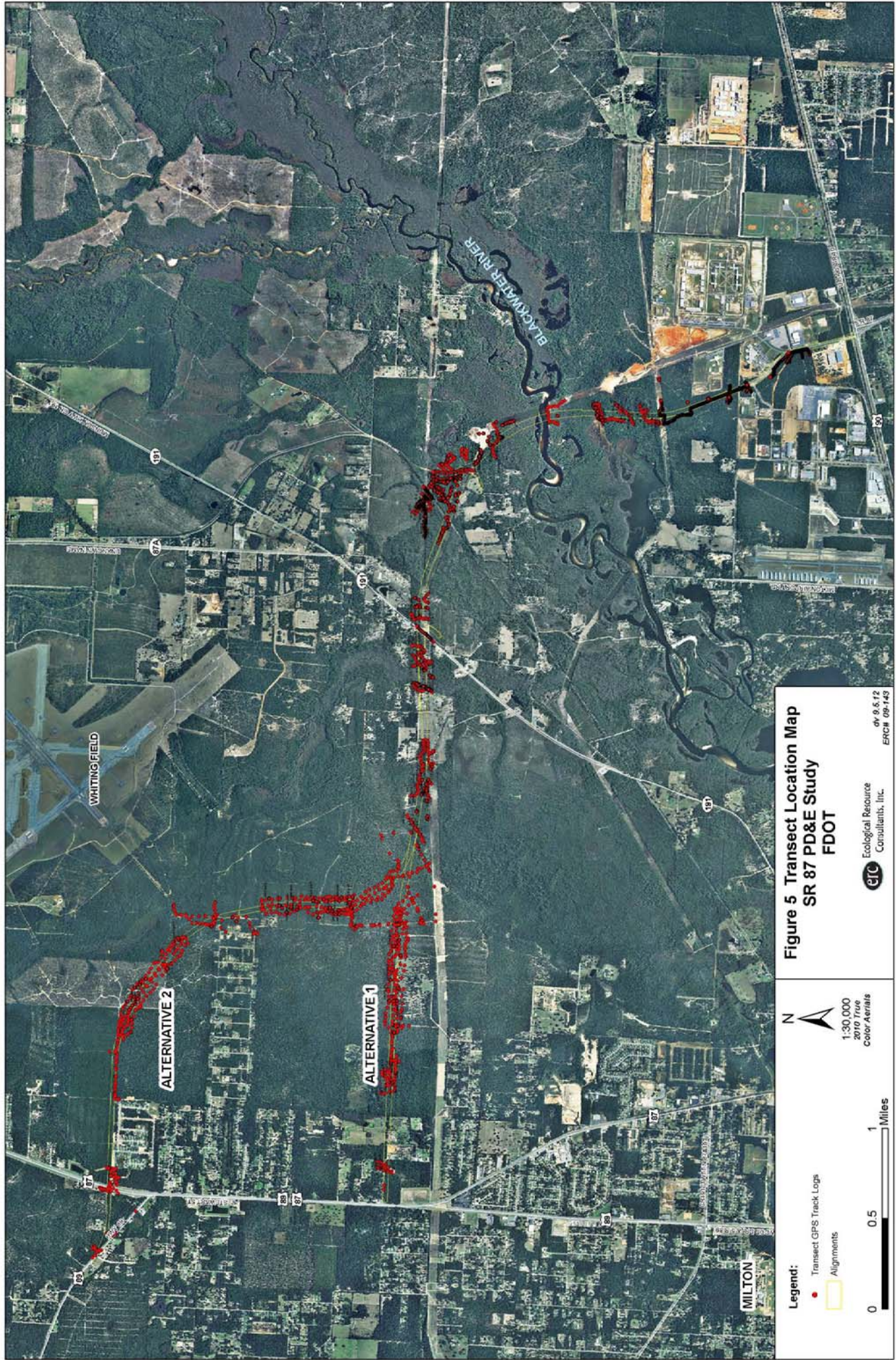
0 200 400 800 Feet

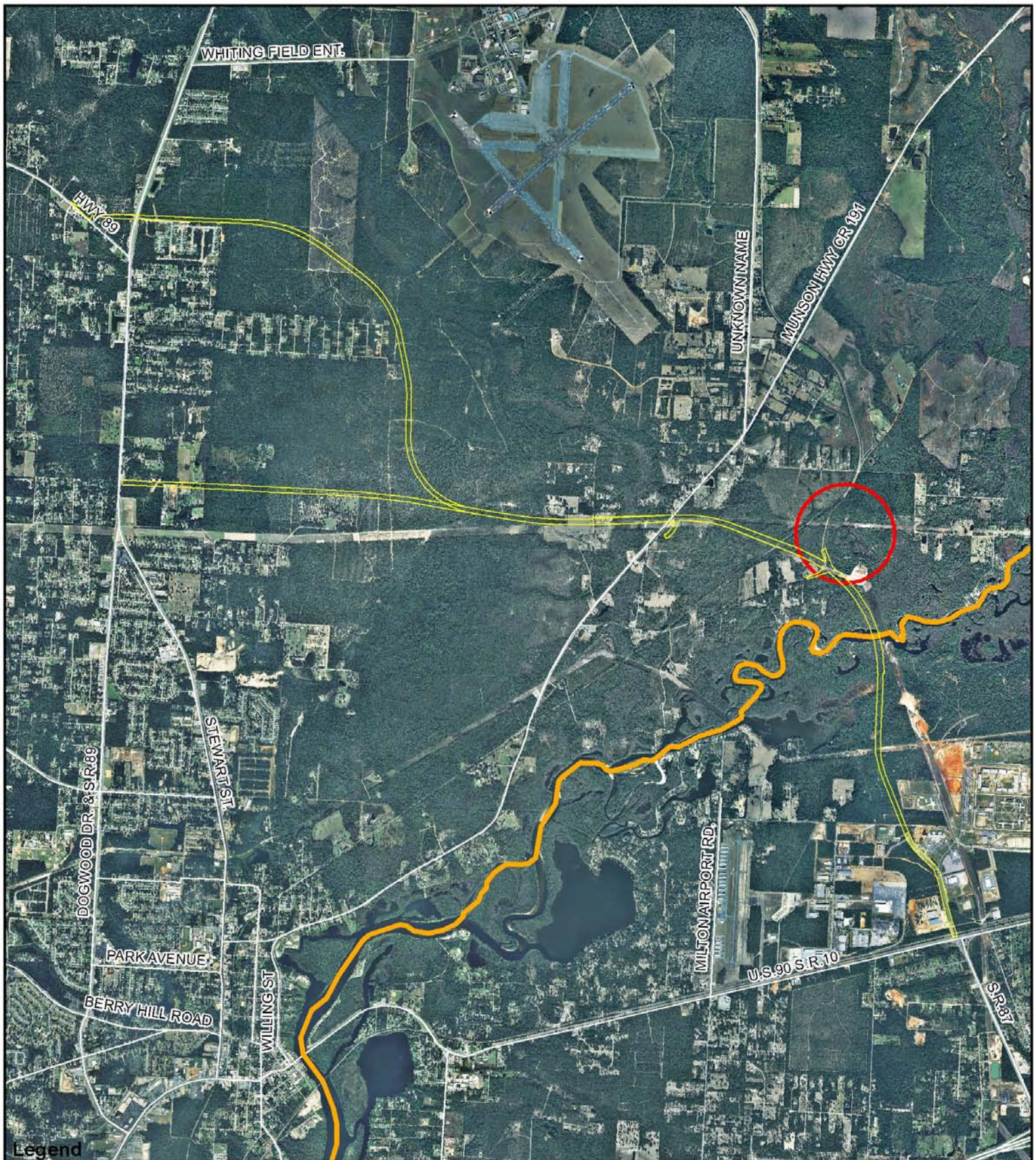


1:3,000

2010 True
Color Aerials

Figure 4.2.13 T&E Species Map SR 87 PD&E Study FDOT





Legend

- Alignments
 - Gulf Sturgeon Habitat*
 - Reticulated Flatwoods Salamander Habitat*
- majrds

* Data obtained from USFWS <http://criticalhabitat.fws.gov/docs/crithab/crithab_all_layers.zip>

0 0.5 1 2 Miles



2010 True Color
Aerial

Figure 6 - Critical Habitat Map

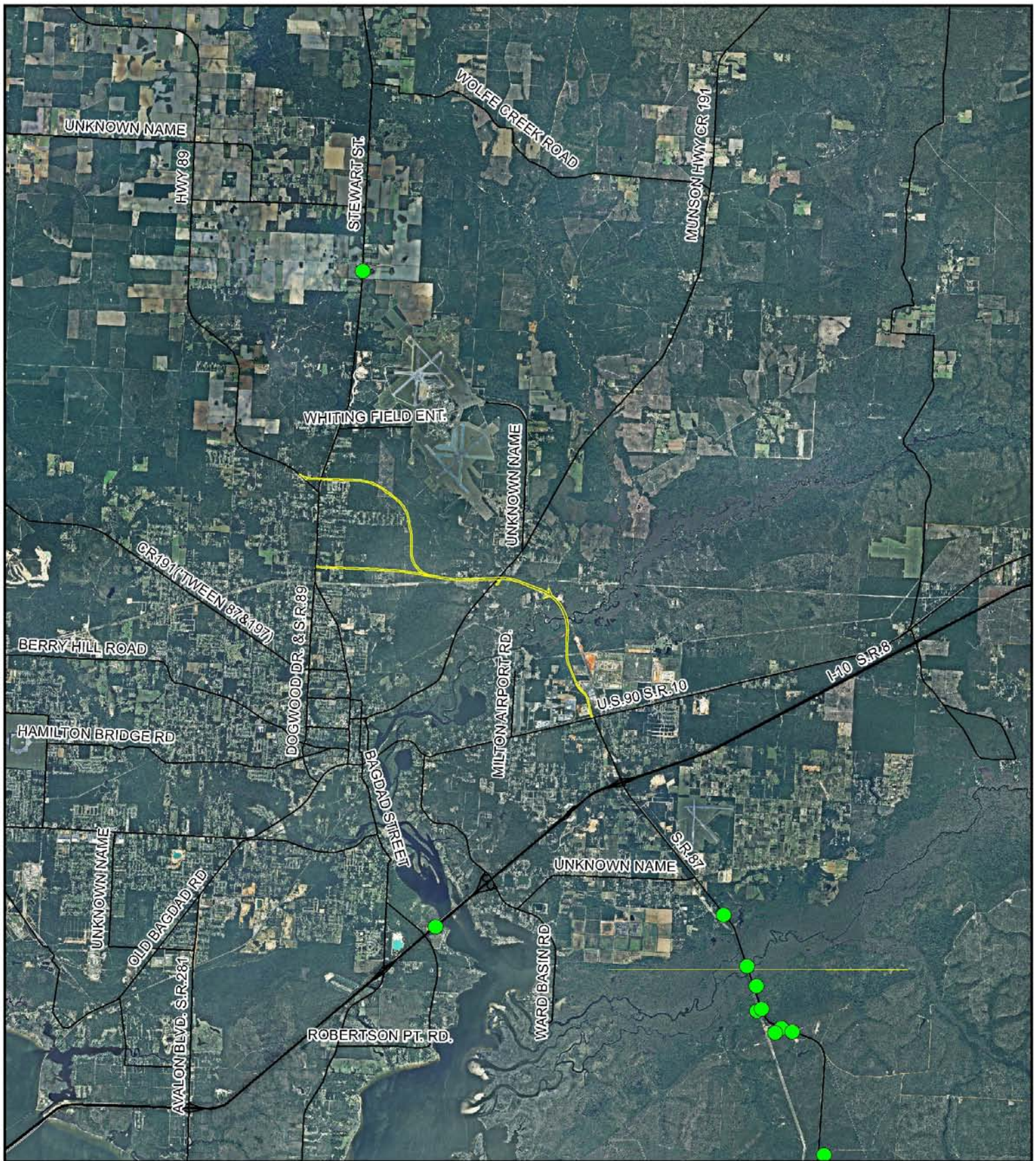
SR 87 PD&E Study

FDOT



Ecological Resource
Consultants, Inc.

dv 9.5.12
ERC #09-143



Legend

● FWC Black Bear Road Kills*

▬ Alignments

* Data obtained from FWC <<http://research.myfwc.com/>> and depicts data from 1976-2009

0 2.5 5 Miles



2010 True Color
Aerial

Figure 7 - Black Bear Road Kills

SR 87 PD&E Study FDOT



Ecological Resource
Consultants, Inc.

dv 9.5.12
ERC #09-143

Figure 8 – Bald Eagle Nest Data

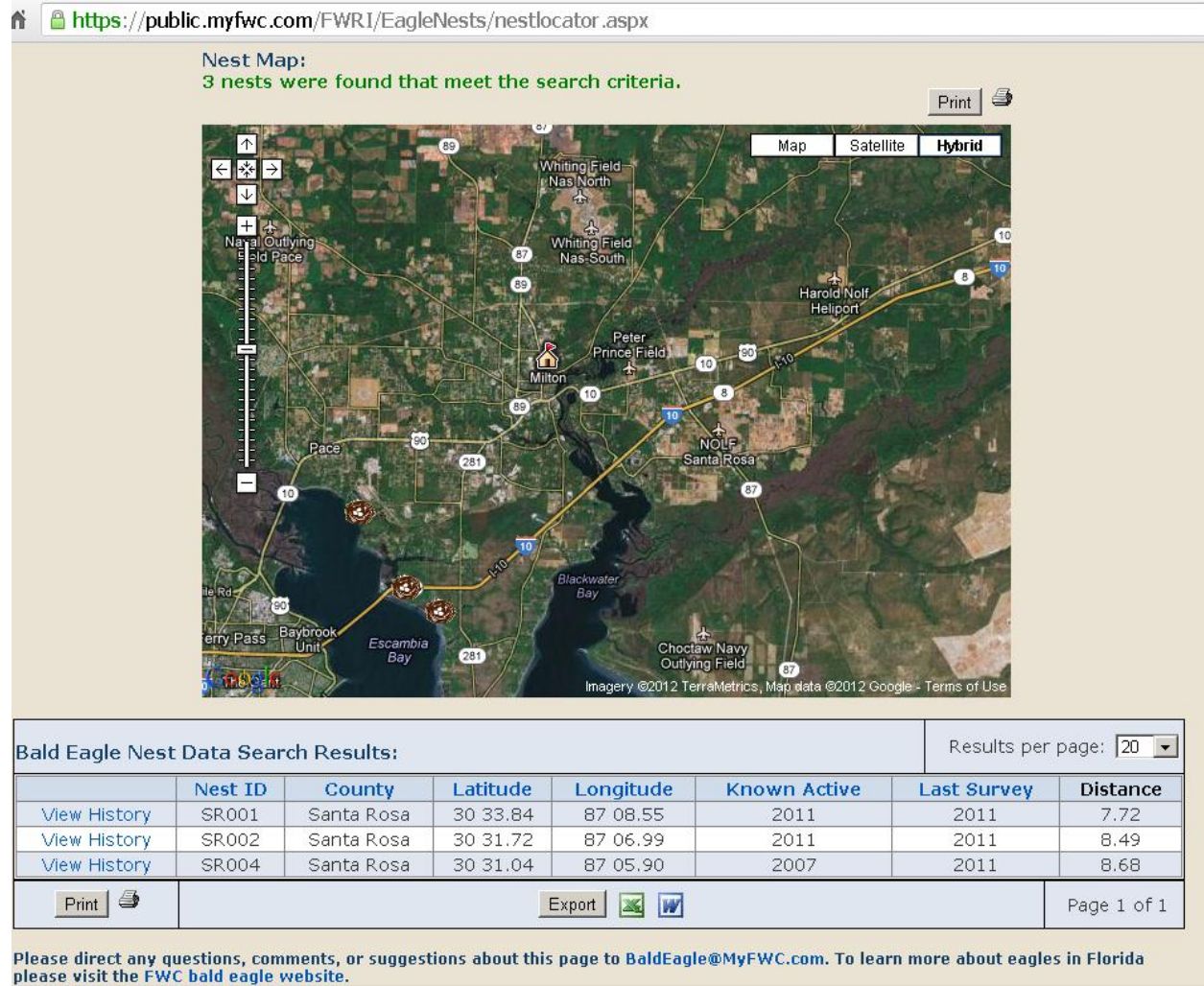




Table1 & Table 2

**Table 1: Search List of Federal and State T&E Plant and Animal Species
Potentially Occurring in Santa Rosa County**

Plants and Lichens		Federal	State
Scientific Name	Common Name	Status	Status
Andropogon arctatus	Pine-woods Bluestem	N	LT
Baptisia calycosa var. villosa	Hairy Wild Indigo	N	LT
Calamovilfa curtissii	Curtiss' Sandgrass	N	LT
Calycanthus floridus	Sweet-shrub	N	LE
Carex baltzellii	Baltzell's Sedge	N	LT
Chrysopsis godfreyi	Godfrey's Goldenaster	N	LE
Chrysopsis gossypina ssp. cruiseana	Cruise's Goldenaster	N	LE
Coelorachis tuberculosa	Piedmont Jointgrass	N	LT
Drosera intermedia	Spoon-leaved Sundew	N	LT
Eleocharis rostellata	Beaked Spikerush	N	LE
Epigaea repens	Trailing Arbutus	N	LE
Fothergilla gardenii	Dwarf Witch-alder	N	LE
Hexastylis arifolia	Heartleaf	N	LT
Ilex amelanchier	Serviceberry Holly	N	LT
Juncus gymnocarpus	Coville's Rush	N	LE
Kalmia latifolia	Mountain Laurel	N	LT
Lachnocaulon digynum	Bog Button	N	LT
Lepuropetalon spathulatum	Little-people	N	LE
Lilium iridollae	Panhandle Lily	N	LE
Lobelia boykinii	Pond's Lobelia	N	LE
Macranthera flammea	Hummingbird Flower	N	LE
Magnolia ashei	Ashe's Magnolia	N	LE
Magnolia pyramidata	Pyramid Magnolia	N	LE
Najas filifolia	Narrowleaf Naiad	N	LT
Pinguicula primuliflora	Primrose-flowered Butterwort	N	LE
Platanthera blephariglottis var. conspicua	White Fringe Orchid	N	LT
Platanthera ciliaris	Yellow Fringe Orchid	N	LT
Platanthera clavellata	Little Club-spur Orchid	N	LE
Platanthera cristata	Crested Fringed Orchid	N	LT
Platanthera integra	Yellow Fringeless Orchid	N	LE
Pogonia (Cleistes) bifaria	Fernald's Pogonia	N	LT
Polygonella macrophylla	Large-leaved Jointweed	N	LT
Potamogeton floridanus	Florida Pondweed	N	LE
Pteroglossaspis ecristata	Giant Orchid	N	LT
Quercus arkansana	Arkansas Oak	N	LT
Rhexia parviflora	Small-flowered Meadowbeauty	N	LE
Rhododendron austrinum	Florida Flame Azalea	N	LE
Rhynchospora crinipes	Hairy-peduncled Beaksedge	N	LE
Sarracenia leucophylla	White-top Pitcherplant	N	LE
Sarracenia psittacina	Parrot Pitcherplant	N	LT
Sarracenia rosea (S. purpurea burkii)	Gulf Purple Pitcherplant	N	LT
Sarracenia rubra	Sweet Pitcherplant	N	LT
Sideroxylon thornei	Thorne's Buckthorn	N	LE
Stewartia malacodendron	Silky Camellia	N	LE
Tephrosia mohrii	Pineland Hoary-pea	N	LT

Xyris scabrifolia	Harper's Yellow-eyed Grass	N	LT
-------------------	----------------------------	---	----

Bivalves (Clams and Mussels)

Scientific Name	Common Name	Federal Status	State Status
Fusconaia escambia	Narrow Pigtoe	C	N
Fusconaia rotulata	Round Ebonyshell	C	N
Pleurobema strodeanum	Fuzzy Pigtoe	C	N
Villosa choctawensis	Choctaw Bean	C	N

Fish

Scientific Name	Common Name	Federal Status	State Status
Acipenser oxyrinchus desotoi	Gulf Sturgeon	LT	FT
Crystallaria asprella	Crystal Darter	N	ST
Etheostoma histrio	Harlequin Darter	N	SSC
Fundulus jenkinsi	Saltmarsh Topminnow	SC	SSC
Notropis melanostomus	Blackmouth Shiner	N	ST
Pteronotopis welaka	Bluenose Shiner	N	SSC

Amphibians

Scientific Name	Common Name	Federal Status	State Status
Ambystoma bishopi	Reticulated Flatwoods Salamander	LE	FE
Hyla andersonii	Pine Barrens Treefrog	N	SSC
Rana capito	Gopher Frog	N	SSC
Rana okaloosae	Florida Bog Frog	N	SSC

Reptiles

Scientific Name	Common Name	Federal Status	State Status
Alligator mississippiensis	American Alligator	SAT	FT(S/A)
Caretta caretta	Loggerhead	LT	FT
Chelonia mydas	Green Turtle	LE	FE
Dermochelys coriacea	Leatherback	LE	FE
Drymarchon couperi	Eastern Indigo Snake	LT	FT
Gopherus polyphemus	Gopher Tortoise	N	ST
Lepidochelys kempii	Kemp's Ridley	LE	FE
Macrochelys temminckii	Alligator Snapping Turtle	N	SSC
Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC

Birds

Scientific Name	Common Name	Federal Status	State Status
Charadrius alexandrinus	Snowy Plover	N	ST
Charadrius melodus	Piping Plover	LT	FT
Cistothorus palustris marianae	Marian's Marsh Wren	N	SSC
Egretta caerulea	Little Blue Heron	N	SSC
Egretta thula	Snowy Egret	N	SSC
Egretta tricolor	Tricolored Heron	N	SSC
Eudocimus albus	White Ibis	N	SSC
Falco sparverius paulus	Southeastern American Kestrel	N	ST

Haematopus palliatus	American Oystercatcher	N	SSC
Mycteria americana	Wood Stork	LE	FE
Pandion haliaetus	Osprey	N	SSC*
Pelecanus occidentalis	Brown Pelican	N	SSC
Picoides borealis	Red-cockaded Woodpecker	LE	FE
Rynchops niger	Black Skimmer	N	SSC
Sternula antillarum	Least Tern	N	ST

Mammals		Federal	State
Scientific Name	Common Name	Status	Status
Sciurus niger shermani	Sherman's Fox Squirrel	N	SSC
Tamias striatus	Eastern Chipmunk	N	SSC
Trichechus manatus	Manatee	LE	FE
Ursus americanus floridanus	Florida Black Bear	N	ST*

Table 2: List of Federal and State T&E Plant and Animal Species Observed within the SR 87 Alignment 1 and 2 Areas During the Field Survey September 2011

Plants and Lichens		Federal	State
Scientific Name	Common Name	Status	Status
Andropogon arctatus	Pine-woods Bluestem	N	LT
Baptisia calycosa var. villosa	Hairy Wild Indigo	N	LT
Calamovilfa curtissii	Curtiss' Sandgrass	N	LT
Drosera intermedia	Spoon-leaved Sundew	N	LT
Lilium iridollae	Panhandle Lily	N	LE
Pinguicula primuliflora	Primrose-flowered Butterwort	N	LE
Platanthera ciliaris	Yellow Fringe Orchid	N	LT
Pogonia (Cleistes) bifaria	Fernald's Pogonia	N	LT
Rhexia parviflora	Small-flowered Meadowbeauty	N	LE
Sarracenia leucophylla	White-top Pitcherplant	N	LE
Sarracenia psittacina	Parrot Pitcherplant	N	LT
Sarracenia rosea (S. purpurea burkii)	Gulf Purple Pitcherplant	N	LT
Reptiles		Federal	State
Scientific Name	Common Name	Status	Status
Gopherus polyphemus	Gopher Tortoise	N	ST



Appendix B: Construction Special Provisions – Sturgeon Protection Guidelines

**CONSTRUCTION SPECIAL PROVISIONS
STURGEON PROTECTION GUIDELINES
(PURSUANT TO NMFS AND USFWS)**

The shortnose sturgeon (*Acipenser brevirostrum*) and the gulf sturgeon (*A. oxyrinchus desotoi*) are listed under the Endangered Species Act as endangered and threatened, respectively. These species are under the jurisdiction of the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). Potential habitat for the gulf sturgeon is located within the limits of this project.

The following special provisions will be incorporated into any construction contract where involvement with sturgeon may occur:

The FDOT has coordinated with the NMFS and USFWS early in the project development stage. The following provisions are intended to avoid/ protect known spawning habitats, nursery areas, feeding areas and thermal refuges.

1. The Florida Department of Transportation (FDOT) shall advise all FDOT project personnel and Contractor personnel on the project that there are civil and criminal penalties for harming, harassing or killing sturgeon, which are protected under the Endangered Species Act of 1973. The FDOT and the Contractor will be held responsible for any sturgeon harmed, harassed, or killed as a result of the project activity.
2. The FDOT shall provide information to all FDOT and Contractor personnel for identification of sturgeon.
3. No dredging of the river bottom will be conducted for barge access.
4. Drilled shaft pile construction will be used whenever prudent and feasible as determined by FDOT.
5. Care shall be taken in lowering equipment or material below the water surface and into the stream bed. These precautions will be taken to ensure no harm occurs to any sturgeon which may enter the construction area undetected.
6. If the use of explosives is necessary, the following protection measures will be employed for projects in FDOT's District 3.

In riverine areas:

- No blasting will occur in known spawning, staging, feeding, or nursery areas.
- In-water explosive work should be avoided between the months of April to October.
- If explosive work becomes necessary within the April to October time frame, a non-lethal "Fish Scare" charge will be detonated one minute prior to detonation of the underwater blast.

In estuarine areas:

- No blasting will occur in known spawning, staging, feeding, or nursery areas.
- In-water explosive work should be avoided between the months of October to April.
- If explosive work becomes necessary within the October to April time frame, a non-lethal "Fish Scare" charge will be detonated one minute prior to detonation of the underwater blast.

In the event that a sturgeon is killed during blasting, the NMFS and/or the USFWS will be notified immediately.

National Marine Fisheries Service
Habitat Conservation Division
Attention: Mark Thompson
3500 Delwood Beach Road
Panama City, Florida 32408
850.234.2788

US Fish and Wildlife Service
Attention: Mary Mittiga
1601 Balboa Ave.
Panama City, Florida 32405
850.769.0552

7. Any dead sturgeon will be secured on site for carcass analysis by notified agency representative.
8. Following completion of the project, a report summarizing any involvement with sturgeon will be prepared for NMFS and/or USFWS.



Appendix C: Standard Manatee Conditions for In-Water Work

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

1. An eastern indigo snake protection/education plan shall be developed by the applicant or requestor for all construction personnel to follow. The plan shall be provided to the Service for review and approval at least 30 days prior to any clearing activities. The educational materials for the plan may consist of a combination of posters, videos, pamphlets, and lectures (*e.g.*, an observer trained to identify eastern indigo snakes could use the protection/education plan to instruct construction personnel before any clearing activities occur). Informational signs should be posted throughout the construction site and along any proposed access road to contain the following information:
 - a. a description of the eastern indigo snake, its habits, and protection under Federal Law;
 - b. instructions not to injure, harm, harass or kill this species;
 - c. directions to cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming clearing; and,
 - d. telephone numbers of pertinent agencies to be contacted if a dead eastern indigo snake is encountered. The dead specimen should be thoroughly soaked in water and then frozen.
2. If not currently authorized through an Incidental Take Statement in association with a Biological Opinion, only individuals who have been either authorized by a section 10(a)(1)(A) permit issued by the Service, or by the State of Florida through the Florida Fish Wildlife Conservation Commission (FWC) for such activities, are permitted to come in contact with an eastern indigo snake.
3. An eastern indigo snake monitoring report must be submitted to the appropriate Florida Field Office within 60 days of the conclusion of clearing phases. The report should be submitted whether or not eastern indigo snakes are observed. The report should contain the following information:
 - a. any sightings of eastern indigo snakes and
 - b. other obligations required by the Florida Fish and Wildlife Conservation Commission, as stipulated in the permit.

Revised February 12, 2004



Appendix D: Standard Protection Measures for the Eastern Indigo Snake

ATTACHMENT #3
SPGP IV

Standard Manatee Conditions For In-water Work

July 2009

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2009

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

- a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.
- b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.
- c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.
- d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.
- e. Any collision with or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or Vero Beach (1-772-562-3909) for south Florida.
- f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Awareness signs that have already been approved for this use by the Florida Fish and Wildlife Conservation Commission (FWC) must be used (see MyFWC.com). One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8 1/2" by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities.

CAUTION: MANATEE HABITAT

All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



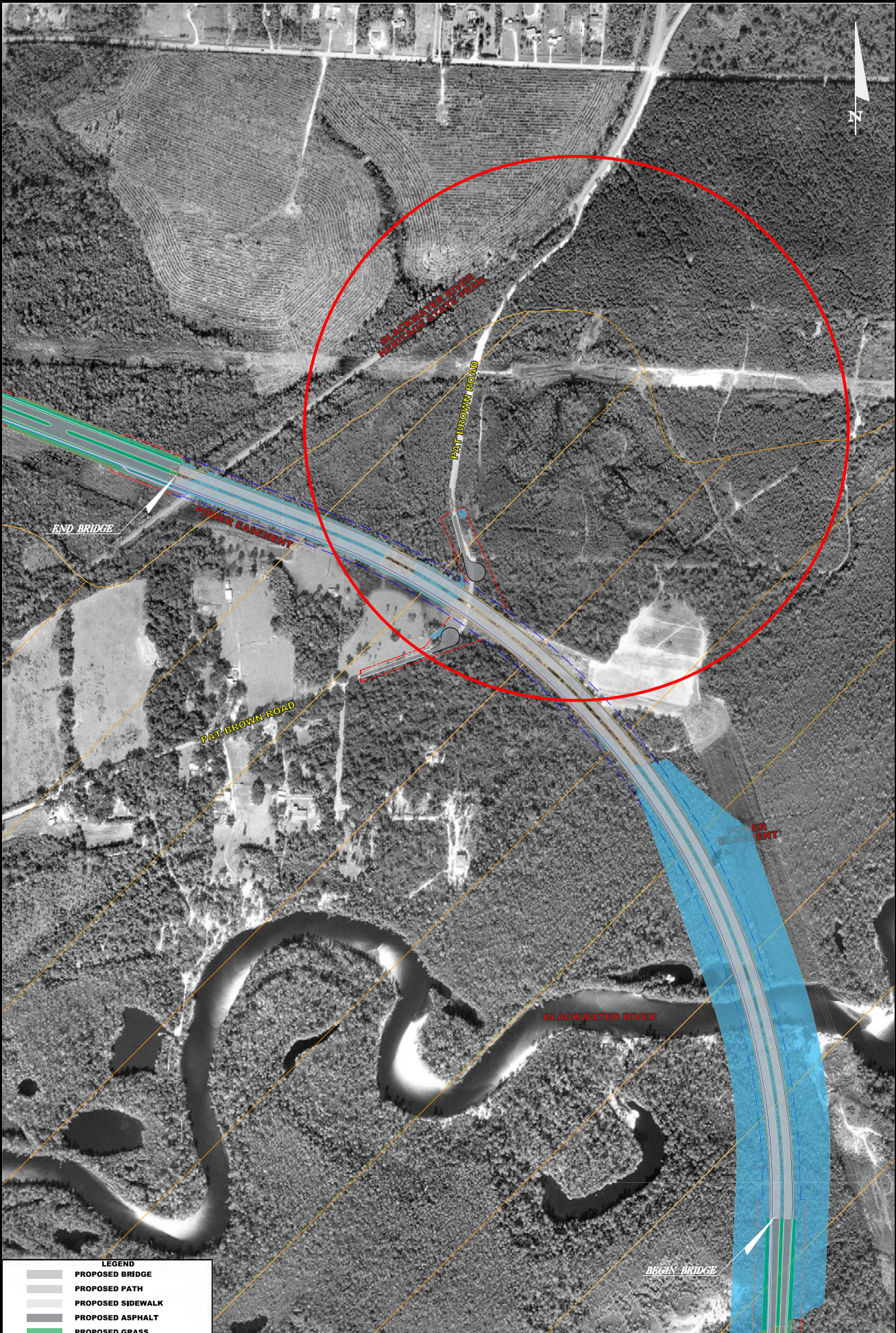
Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC



Appendix E: Flatwoods Salamander Bridge Area



LEGEND	
	PROPOSED BRIDGE
	PROPOSED PATH
	PROPOSED SIDEWALK
	PROPOSED ASPHALT
	PROPOSED GRASS
	FLATWOODS SALAMANDER HABITAT
	EXISTING RIGHT-OF-WAY
	PROPOSED RIGHT-OF-WAY
	WETLANDS
	FLOODPLAIN



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	
ROAD NO.	COUNTY
SR 87	SANTA ROSA

0 100 500
Feet

**FLATWOODS
SALAMANDER
CU BRIDGE AREA**



Appendix F: Reticulated Flatwoods Salamander Desktop Evaluation



Reticulated Flatwoods Salamander (RFS) Analysis

I. Introduction

Wetlands that could potentially serve as habitat for the RFS were identified and assessed as a part of the PD&E and NEPA processes associated with the SR 87 Connector PD&E. The rationale for conducting this assessment was based on the presence of designated RFS Critical Habitat within the project alignment and conversations with the United States Fish and Wildlife Service (USFWS) staff, as discussed on pages 19 and 22 of this ESBAR. This desktop analysis summary is intended to discuss the methods and results of the desktop RFS habitat assessment conducted for the SR 87 PD&E.

Methods for assessing and scoring/grading potential RFS habitat have been previously established. HDR, Inc., in conjunction with the USFWS and the Florida Fish and Wildlife Conservation Commission (FFWCC) on behalf of the Florida Department of Transportation (FDOT), developed a method (“HDR Method”) that was utilized for the US Highway 98 widening project in 2001. The HDR Method is applicable for both the RFS and the frosted flatwoods salamander. As such, the HDR Method was followed in conducting a desktop review to identify potential RFS breeding ponds and necessary supporting habitat associated with the SR 87 Connector alternative corridors and alignments.

Typical RFS breeding sites comprise isolated, shallow depressions (“ponds”) and a relatively narrow ecotone (20-50 feet wide) dominated by herbaceous plants and scattered shrubs. Breeding ponds are characterized by short hydroperiods (ephemeral) and relatively open overstories (low tree and shrub densities) and midstories. Breeding ponds range in size and are associated with Rutlege, Pickney, Dorovan, Pamlico, or similar very poorly drained and poorly drained soil types (Federal Register, February 2009). Florida Land Use Cover and Forms Classification System (FLUCFCS) habitat types 621 (cypress), 630 (mixed forested wetland), 640 (vegetated non-forested wetland), and 641 (freshwater marsh) are identified as being utilized by breeding RFS. Cypress ponds tend to be associated with higher quality RFS habitats. Appropriate upland habitat (a relatively open pine canopy with native herbaceous species) that surrounds the breeding pond and an associated herbaceous species-dominated ecotone are also important to RFS life history needs. This desktop assessment was followed by initial, limited field evaluations/ verifications.

II. Methodology

The desktop/GIS identification of potential RFS ponds initially focused on 1,500 feet wide buffers from the center line of the proposed alternative alignments. Additional datasets used in the desktop assessment included Santa Rosa County soils, Northwest Florida Water Management District land cover (2007), USFWS critical habitat data, USFWS National Wetlands Inventory (2010), and aerial photographs.

First, all very poorly drained (VPD) and poorly drained (PD) soils were selected from the soil mapping units that occurred in the alternative alignments and the 1,500 foot buffers (Figure 1).



After all the VPD and PD soils were selected, the VPD and PD polygons associated with the Blackwater River and Clear Creek were deleted from the data subset because riverine wetlands are not appropriate RFS habitat. The resulting GIS shapefile called “2_Potential_Soils_Ponds.shp” represents all soil types that could potentially serve as RFS habitat within the alignments and the buffers. The resulting data layer contains five potential ponds. Figure 2 depicts the five potential ponds based on soils.

The potential ponds based on soils were further refined by comparing the areas where the VPD and PD soils intersected with the NWI wetland data. First the NWI data was clipped to the alignment buffers (Figure 3). Then all potential ponds based on soils that were also classified as wetlands according to NWI were grouped in a shapefile called “3_Potential_Soil_Ponds_NWI.shp” (see Figure 4). The resulting data layer contains six potential ponds.

FLUCFCS data was evaluated by selecting all FLUCFCS habitat types that correspond to potential RFS habitat, as described above (Figure 5). The FLUCFCS habitats associated with the Blackwater River and Clear Creek were removed from the resulting data layer because riverine wetlands are not appropriate RFS habitat. All remaining FLUCFCS habitat polygons were grouped into a shapefile called “1_Potential_FLUCCS_Ponds.shp” (see Figure 6). The resulting data layer contains eight potential ponds.

To further refine the potential pond locations, the intersections between “3_Potential_Soils_Pond_NWI.shp” and “1_Potential_FLUCCS_Ponds.shp” were assessed. The rationale is that potential ponds classified as wetlands by soil type, NWI, and FLUCFCS are more likely to provide appropriate RFS habitat. The resulting shapefile is called “4_FLUCCSPond_NWISoilsPonds_Intersect.shp” (see Figure 7), which includes eight potential ponds that are scored and discussed in more detail below.

Figure 1. VPD & PD Soils Map

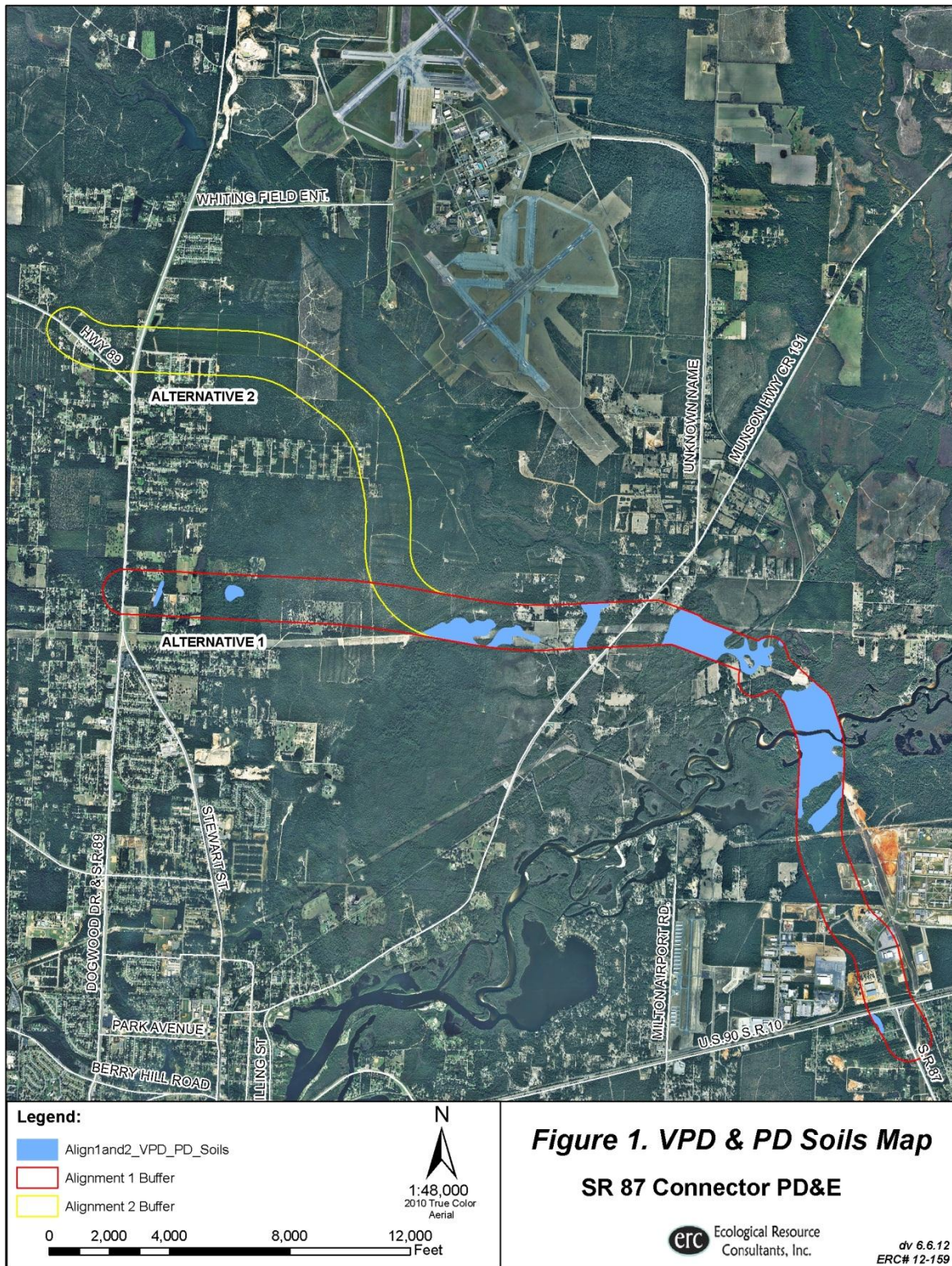


Figure 2. Potential Ponds Based on Soils

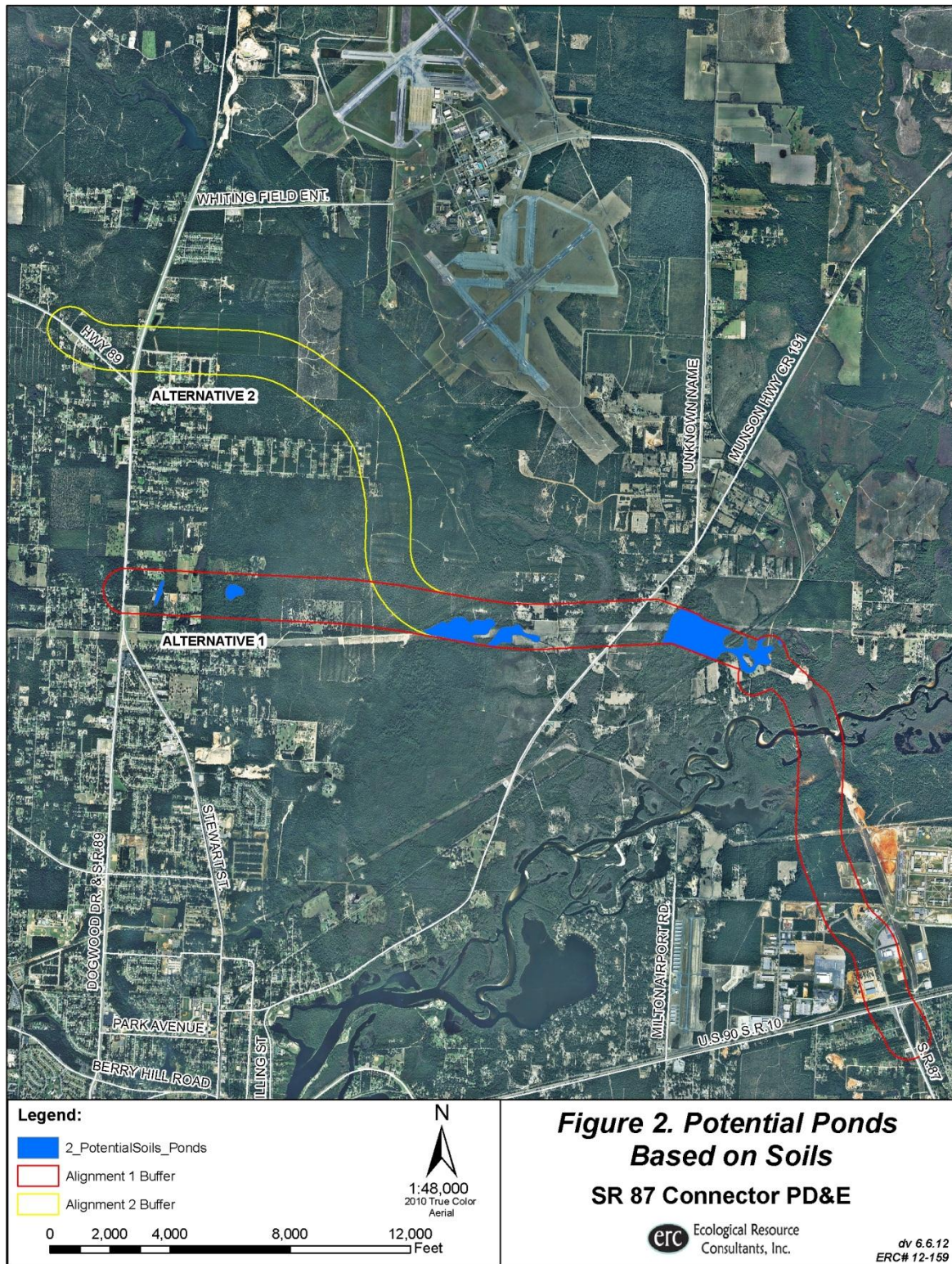


Figure 3. NWI Wetlands Map

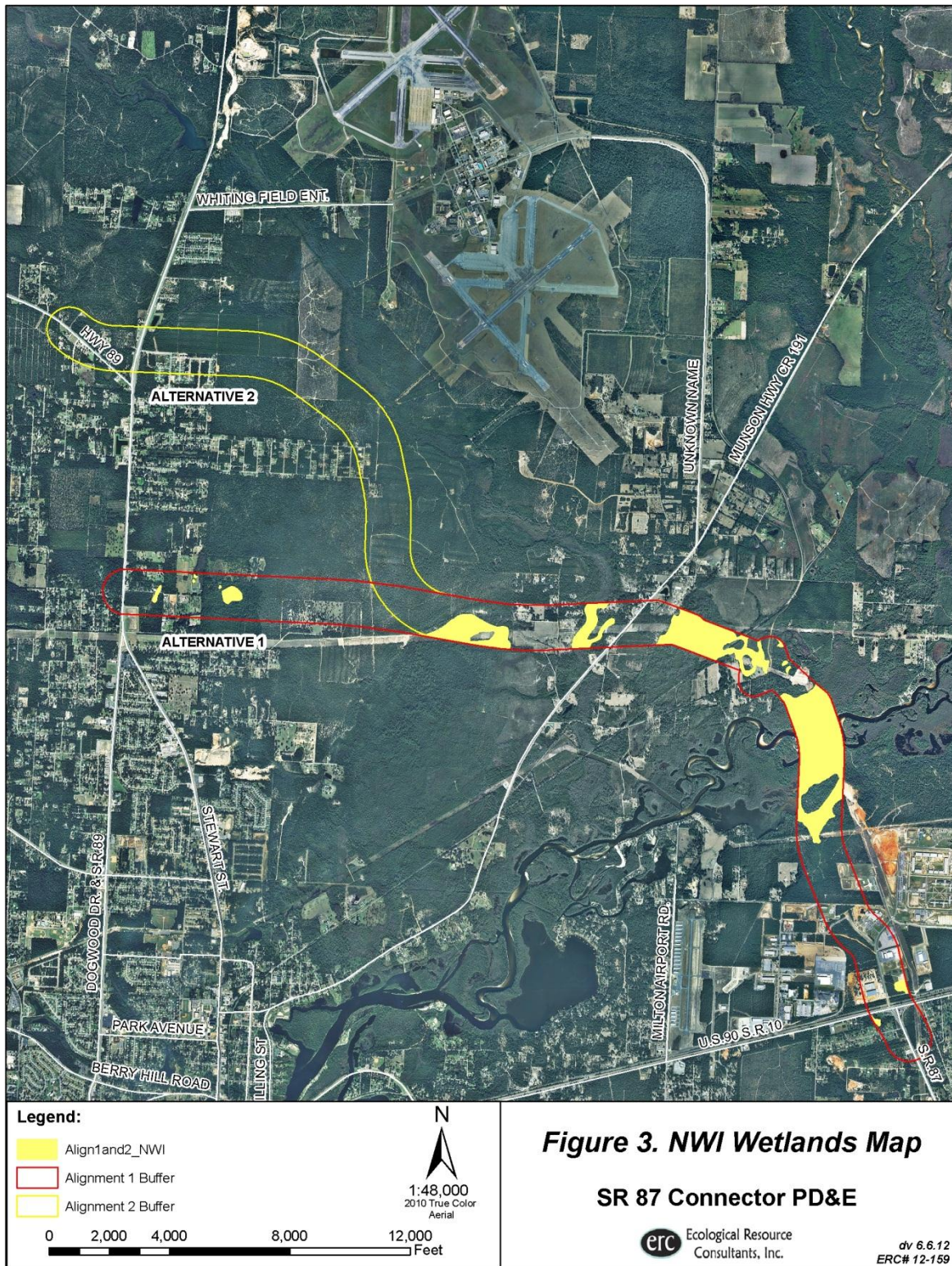


Figure 4. Potential Ponds Based on Soils & NWI

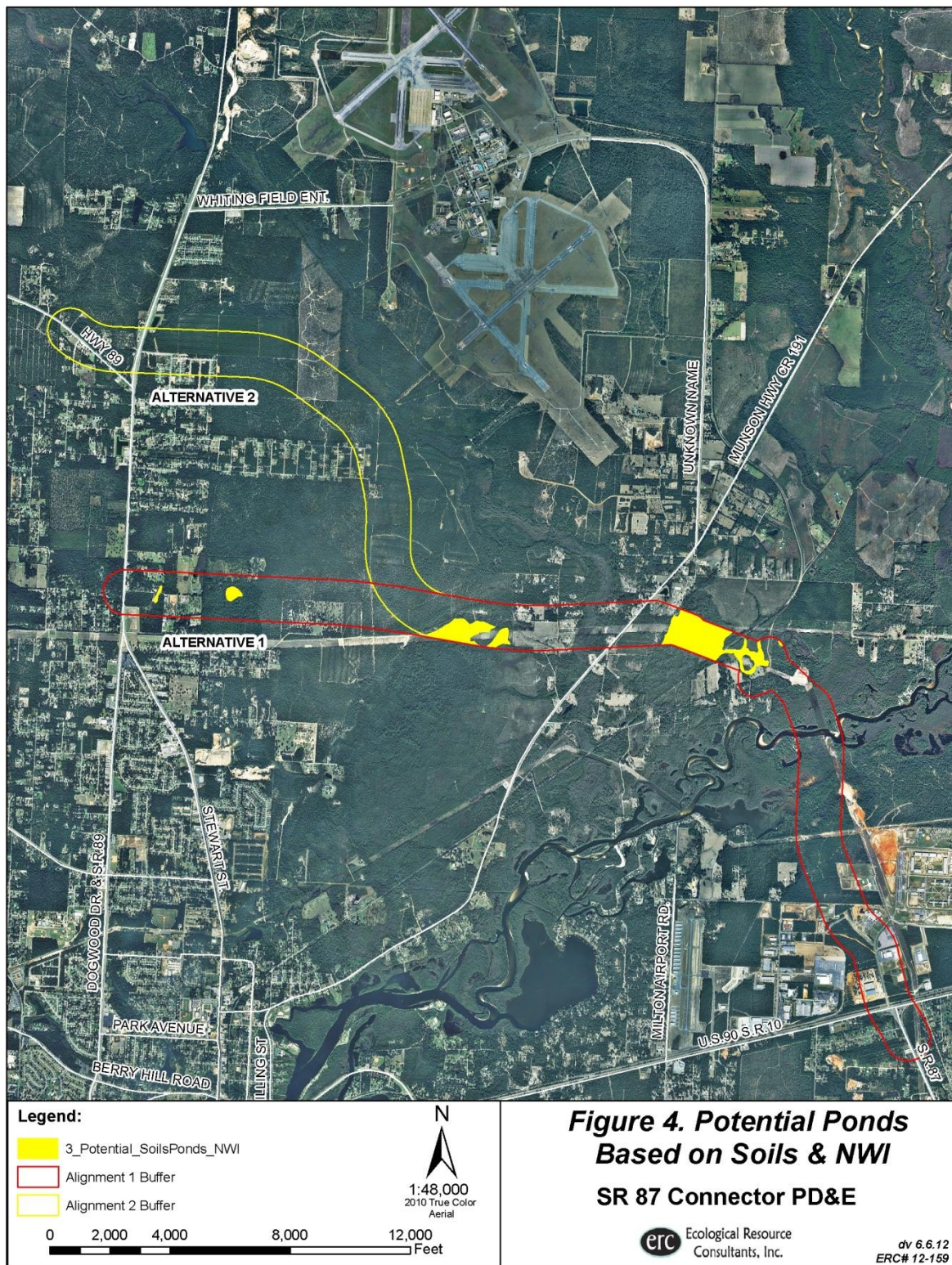


Figure 5. Wetland FLUCFCS Polygon Map

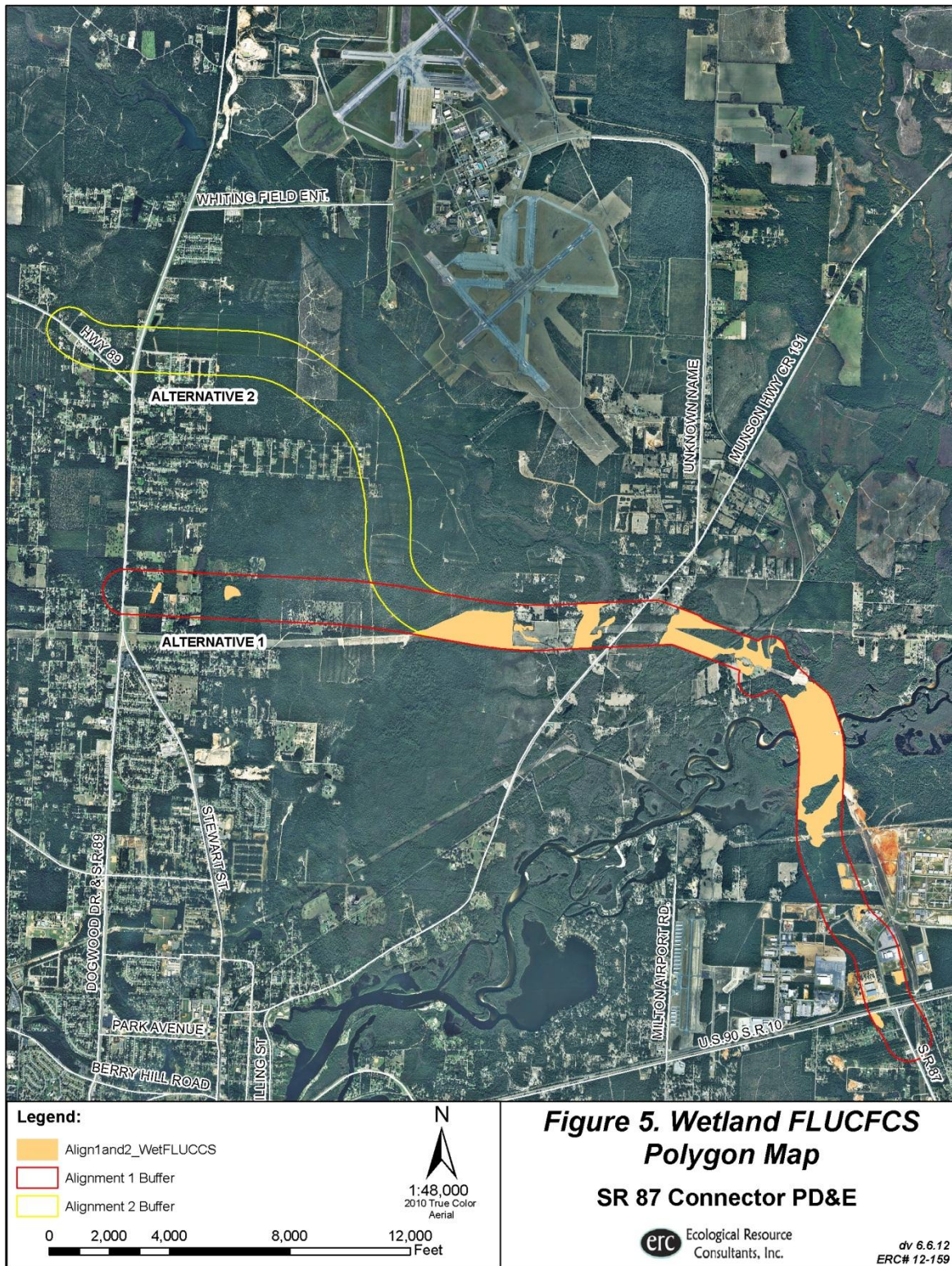


Figure 6. Potential Ponds Based on FLUCFCS

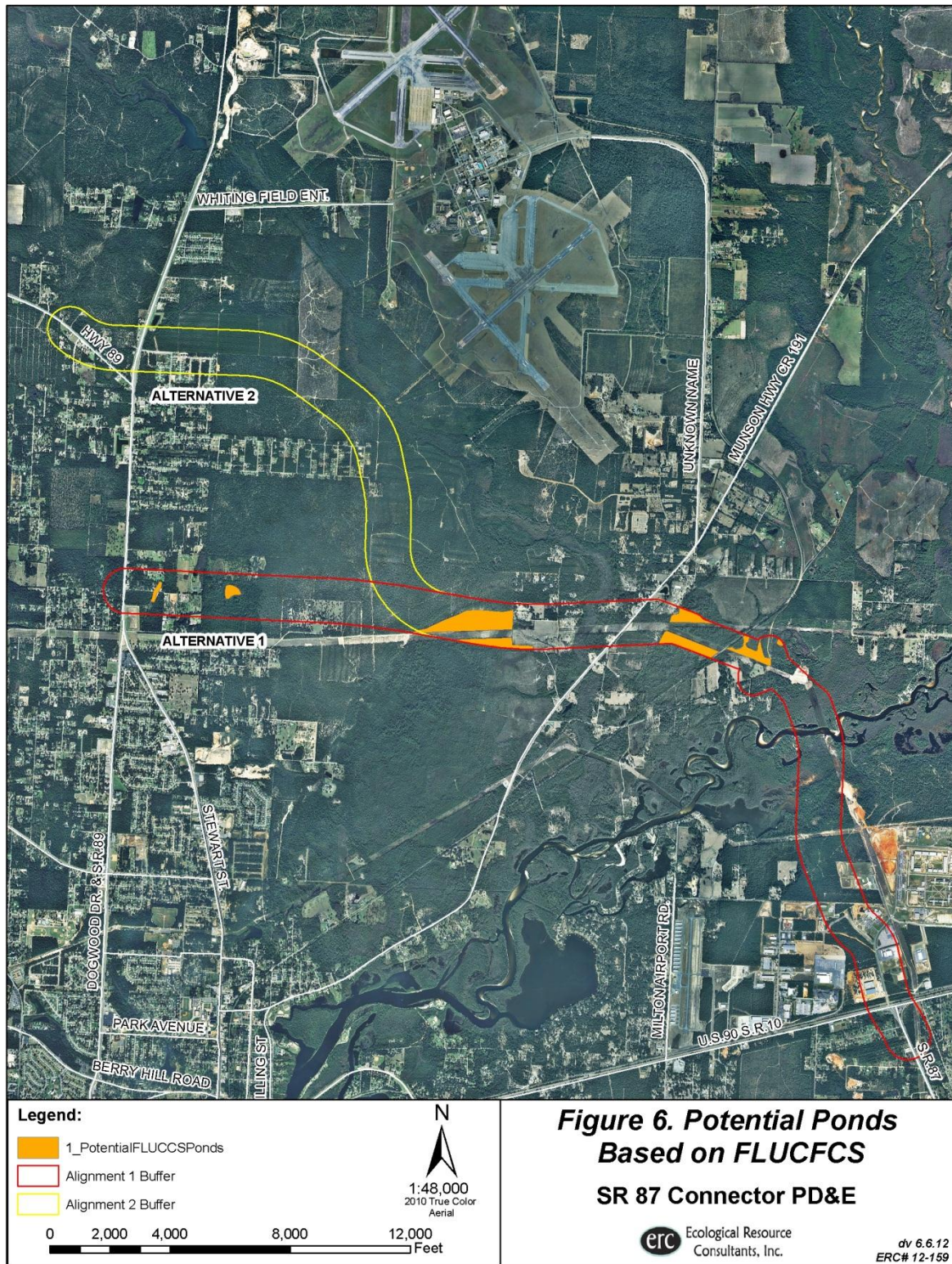
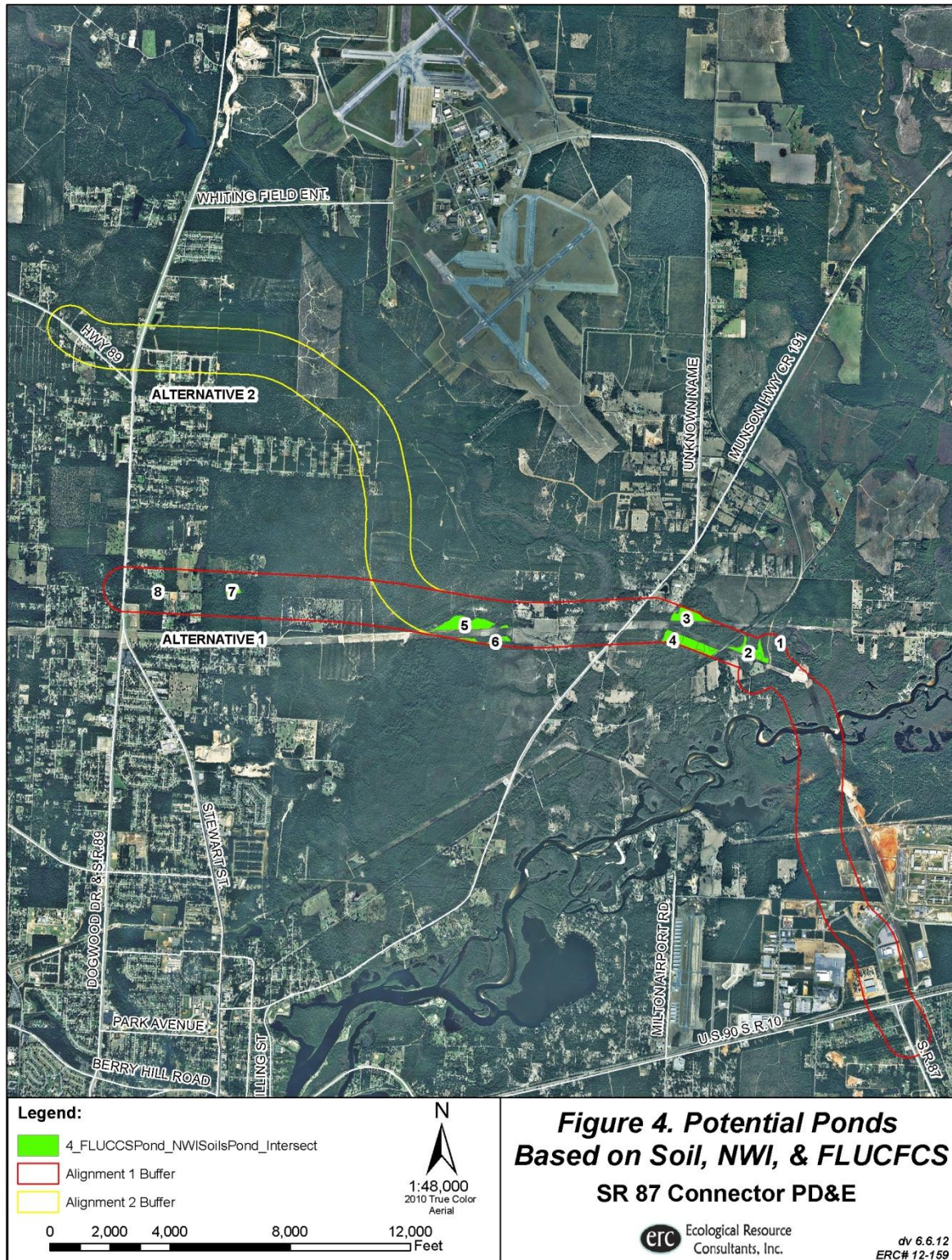


Figure 7. Potential Ponds Based on Soil, NWI, & FLUCFCS Intersect





III. Results

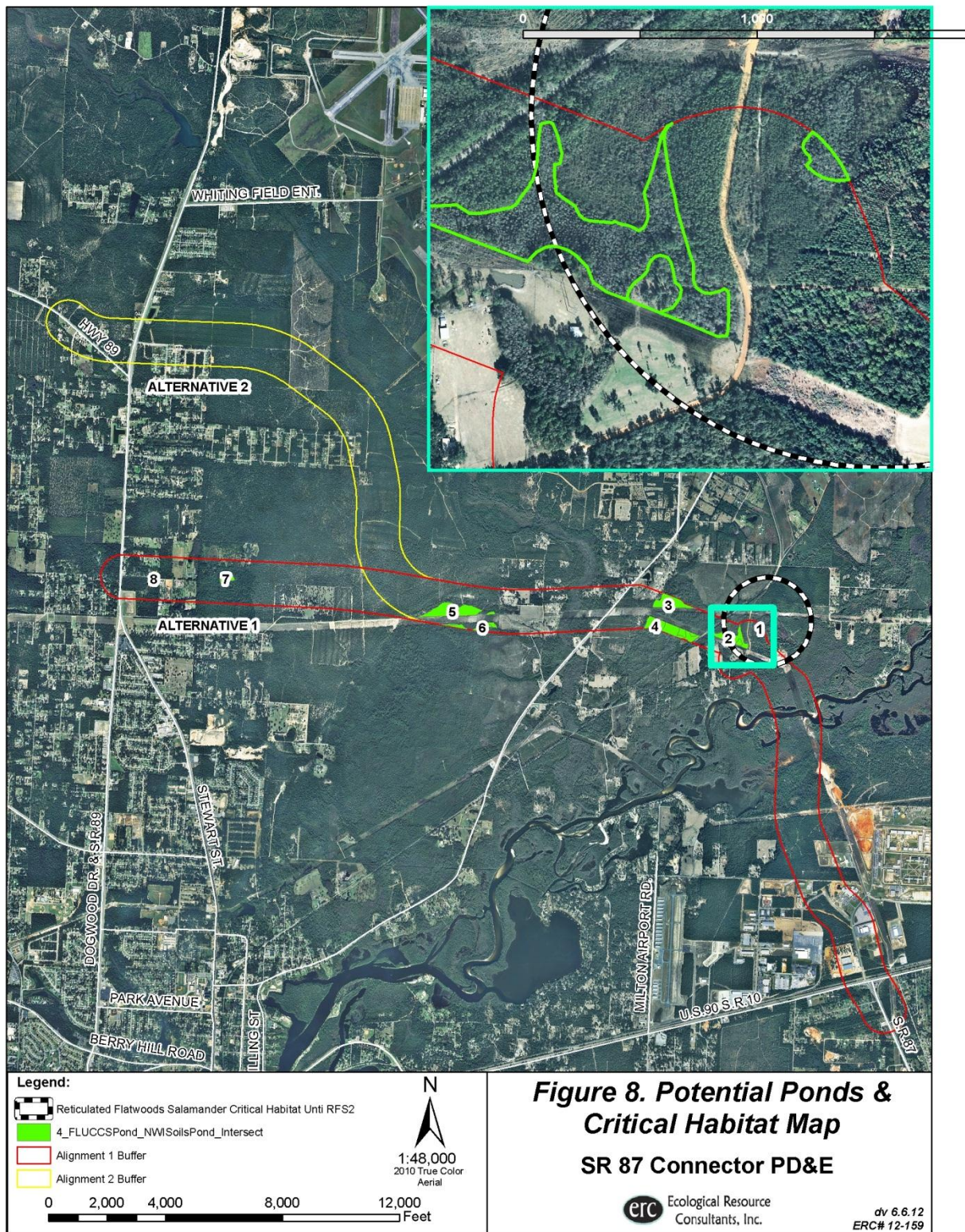
The resulting data layer contains eight unique potential pond/wetland areas that are separated by natural features such as upland areas or manmade features such as powerline easements, roadways, and trails. Portions of these wetlands/ponds were field verified during the wetland delineations and species survey and resulted in the following scores, based on the HDR Method:

Table 1. Summary of Potential Pond Scores based on the HDR Method

Pond Number	Pond Score	Ecotone Score	Upland Score	Total Score	Quality
1	3	2	1	6	Moderate-High
2	2	1	1	4	Low-Moderate
3	1	0	0	1	Low
4	1	0	0	1	Low
5	1	0	0	1	Low
6	1	0	0	1	Low
7	1	0	0	1	Low
8	1	0	0	1	Low

Potential ponds 1 and 2 are located within the known RFS2 Critical Habitat Unit as depicted on Figure 8 (and on Figure 6 of this ESBAR). These potential ponds received the highest scores out of all the pond/wetland areas. Pond 1, which is located on the outermost edge of the 1,500 foot buffer and in the center of the critical habitat unit, is the highest scoring pond and the only pond that would likely support RFS due to appropriate habitat conditions. Potential ponds 3-8 scored low due to poor pond conditions related to poor water quality and inappropriate surrounding vegetation, overgrown ecotones, and poor quality uplands that were planted in pine and/or contained inappropriate habitat types (sandhills instead of mesic pine flatwoods). Photographs have been taken within or in the general vicinity of each potential pond/wetland and the photographs are presented below. Detailed evaluations of each potential pond will be conducted during more specific field surveys associated with potential USFWS consultation.

Figure 8. Potential Ponds and Critical Habitat Map



Pond 1

Pond 1 looking east



Pond 1 looking west and ecotone in background



Pond 1 looking south



Pond 2

Portion of Pond 2 looking west



Pond 2 ecotone looking north



Portion of Pond 2 looking west



Portion of Pond 2 looking south





Ponds 3 & 4

Ecotone and Pond (in background)



Ecotone and Uplands



Ponds 5 & 6

Pond Photos



Ecotone / Upland Photos



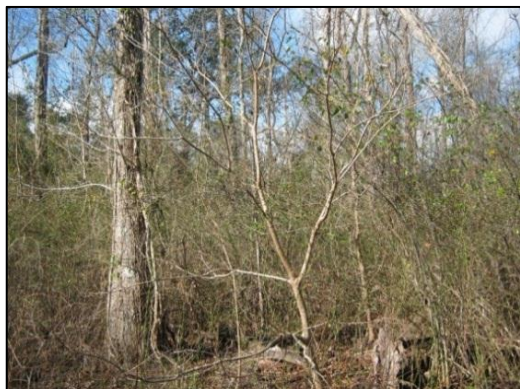


Pond 7

Pond Photo looking north



Ecotone Photo looking west





Pond 8

Pond Photo looking south



Ecotone photo looking south



RFS Desktop Analysis Potential Pond Field Assessment Scoring Sheets

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 1 Site Location: T 2N R 27W S 19 Natural
Community Type: dome swamp Soil: Pond/Ecotone Rutlege Loamy Sand Surrounding
Land Pactolus Loamy Sand, Kalmia Loamy Fine Sand Size: Pond/Ecotone _____
Site Rank: Moderate-High Distance//Direction from US 90 2.3 miles NW

Pond

Overstory: Scattered slash pine and pond cypress

Midstory: *Ilex myrtifolia*, pond cypress, and *nyssa sylvatica*

Groundcover: open water, *Dicanthelium sp.*, *Rhynchospora inundata*, *Lichopodium*, *Sarracennia leucophylla*, *Dichromena*, *Oxypolis oxypidus*.

Ecotone

Portion of the ecotone is a powerline easement with maintained groundcover and no canopy. The remainder of the ecotone is a fire suppressed wet prairie / seepage slope containing titi and *Ilex glabra* with planted slash pine canopy. The groundcover is comprised of *Rhynchospora sp.*, *Carex sp.*, *Rhexia sp.*, *Hypericum chapmanii*, and *Oxypolis sp.*

Surrounding Upland

The uplands are planted Mesic Pine Flatwoods that grade up to higher sandhills. The canopy is dominated by slash pine, turkey oak, and laurel oak and the subcanopy is fire suppressed *Vaccinium elliotii* and *Ilex coriacea*

Remarks:

Habitat Score

Pond (P) 3 0-3

Ecotone (E) 2 0-3

Upland (U) 1 0-3

Metapopulation? (*)

TOTAL SCORE 6 0-9 (*)

RANK Moderate-High



Pond



Ecotone



Upland

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 2 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: dome swamp
Soil: Pond/ECOTONE Rutlege Loamy Sand Surrounding Land Pactolus Loamy Sand, Kalmia Loamy Fine Sand
Size: Pond/ECOTONE 8.4 acres Site Rank: Low - Moderate

Pond

Overstory: Portions in the powerline have been cleared and have no canopy (30%), other portions are dominated by an open pond cypress and slash pine canopy (60%), and the remaining 10% is a moderately closed pond cypress and slash pine canopy.

Midstory: The majority of the pond area is open with scattered myrtle leaf holly (75%) and the remainder is dense myrtle leaf holly and gallberry (25%).

Groundcover: The southern portion of this pond has no vegetation in the groundcover and is comprised of open water for most of the year (30%), In areas with open canopy and sub-canopy there are scattered graminoids (60%), and the remainder of the pond area has only sparse groundcover due to dense over and mid story vegetation (10%).

Ecotone

Approximately 30% of the ecotone has been disturbed by the powerline and pasture maintenance to the south. Where the ecotone is present, it is typically narrow, fire suppressed, and lacking dense herbaceous groundcover. There are narrow portions of intact ecotones that comprise approximately 10% of the total area and contain wiregrass, white-topped pitcher plant, panic grass, and longleaf threeawn.

Surrounding Upland

Approximately 30% of the surrounding upland has been disturbed by powerline and pasture maintenance to the south. Approximately 40% of the uplands are planted in slash pine with dense, fire-suppressed understories and the remainder of the uplands are fire suppressed with dense canopy and shrub strata

Habitat Score

Pond (P) 2 0-3

Ecotone (E) 1 0-3

Upland (U) 1 0-3

Metapopulation? (*)

TOTAL SCORE 4 0-9 (*)

RANK Low- Moderate



Pond Photos



Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 3 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Baygall
Soil: Pond/ECOTONE Rutlege Loamy Sand Surrounding Land Pactolus Loamy Sand, Albany Loamy Sand
Size: Pond/ECOTONE 8.74 acres w/in buffer Site Rank: Low

Pond – *This pond is part of a larger baygall wetland complex that drains south across the powerline and connects to pond 4. This wetland is not a closed depression typical of most flatwoods salamander ponds.*

Overstory: Sweet bay with scattered slash pine with approximately 85% -95% crown closure.

Midstory: Dense black titi and sweet bay

Groundcover: There is little groundcover and approximately 99% of the ground is comprised of bareground, water, and leaf litter. There is scattered chain fern on hummocks.

Ecotone

The ecotone is comprised of a fire suppressed seepage slope with a canopy of slash pine and sweet bay and a subcanopy of sweet bay, slash pine, and scattered pond cypress. Shrub layer includes black titi, gallberry, large gallberry, and Elliot's blueberry with little groundcover due to the dense shrubs.

Surrounding Upland

The surround uplands contain a slash pine canopy and a fire suppressed understory/shrub layer of black titi, gallberry, large galberry, wax myrtle, and Elliot's blueberry with scattered wiregrass in the groundcover.

Habitat Score

Pond (P) 1 0-3

Ecotone (E) 0 0-3

Upland (U) 0 0-3

Metapopulation? (*)

TOTAL SCORE 1 0-9 (*)

RANK Low



Pond



Ecotone



Upland

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 4 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Baygall
Soil: Pond/ECOTONE Rutlege Loamy Sand Surrounding Land Pactolus Loamy Sand, Albany Loamy Sand
Size: Pond/ECOTONE 13.8 acres w/in buffer Site Rank: Low

Pond – *This pond is part of a larger baygall wetland complex that drains south and connects to pond 3. This wetland is not a closed depression typical of most flatwoods salamander ponds.*

Overstory: Sweet bay with scattered slash pine with approximately 85% -95% crown closure.

Midstory: Dense black titi, sweet bay, wax myrtle, red maple, fetterbush, and sweetspiar.

Groundcover: There is little groundcover due to the flow regime through this wetland. The majority of groundcover species are growing on hummocks and include netted chain fern, sphagnum moss, and cinnamon fern and approximately 65%-70% of the groundcover is bareground and water. There is evidence of flow such as secondary flow channeling and rafted leaves and debris throughout the wetland/pond.

Ecotone

The ecotone is comprised of a fire suppressed seepage slope with a canopy of slash pine and sweet bay and a subcanopy of sweet bay, slash pine, and scattered pond cypress. Shrub layer includes black titi, gallberry, large gallberry, sweet pepperbush, and Elliot's blueberry with little groundcover due to the dense shrubs.

Surrounding Upland

The surrounding uplands contain a slash pine, laurel oak, and water oak canopy and a fire suppressed understory/shrub layer of yaupon holly, gallberry, large galberry, wax myrtle, high bush blueberry and Elliot's blueberry with scattered wiregrass, deer moss, broom sedge in the groundcover.

Habitat Score

Pond (P) 1 0-3

Ecotone (E) 0 0-3

Upland (U) 0 0-3

Metapopulation? (*)

TOTAL SCORE 3 0-9 (*)

RANK Low



Pond



Ecotone



Upland

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 5 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Baygall
Soil: Pond/ECOTONE Rutlege Loamy Sand Surrounding Land Pactolus Loamy Sand, Lakeland Sand
Size: Pond/ECOTONE 15.16 acres Site Rank: Low

Pond – This pond is part of a larger baygall wetland complex that drains south across the powerline easement and connects to pond 6. This wetland is not a closed depression typical of most flatwoods salamander ponds.

Overstory: 40% crown closure with pond cypress, black gum, sweet bay, and slash pine.

Midstory: Dense woody growth including black gum, cypress, fetterbush, large gallberry, black titi, and possumhaw.

Groundcover: The groundcover had a significant amount of standing/flowing water (flowing south) and included beaksedge (*Rhynshospora inundata*), sphagnum moss, and netted chain fern growing on hummocks created by the trees and shrubs.

Ecotone

The ecotone is comprised of a fire suppressed bog that grades up to a seepage slope with a canopy of planted slash pine and scattered sweet bay and pond cypress. The shrub strata includes black titi and large gallberry and there is no groundcover due to the dense canopy, sub canopy, and shrub strata

Surrounding Upland

The uplands are comprised of a slash pine, laurel oak, and water oak canopy and poritons of the uplands (60%) are planted with slash pine. The sub-canopy is dominated by slash pine and the shrub layer is dominated by gallberry, large gallberry, and wax myrtle. Where groundcover is present, it is dominated by broomsedge, sunflower (*Helianthus sp.*), yellow jessamine, and wiregrass.

Habitat Score

Pond (P) 1 0-3

Ecotone (E) 0 0-3

Upland (U) 0 0-3

Metapopulation? (*)

TOTAL SCORE 1 0-9 (*)

RANK Low



Pond



Ecotone



Upland

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 6 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Baygall
Soil: Pond/ECOTONE Rutlege Loamy Sand Surrounding Land Dorovan-Pamlico Assoc., Rains Fine Sandy Loam, Lakeland Sand Size: Pond/ECOTONE 4.91 acres w/in buffer Site Rank: Low

Pond – *This pond is part of a larger baygall wetland complex that drains south towards Clear Creek. This wetland is not a closed depression typical of most flatwoods salamander ponds.*

Overstory: 70%-80% crown closure with pond cypress, black gum, sweet bay, and slash pine.

Midstory: Dense woody growth including black gum, cypress, fetterbush, large gallberry, and black titi.

Groundcover: The groundcover has a significant amount of standing/flowing water (flowing south), bareground, and leaf litter. There are scattered netted chain fern growing on hummocks. There is evidence of flow within the wetland including secondary flow channels and rafted debris.

Ecotone

The ecotone is comprised of a fire suppressed bog that grades up to a seepage slope with a canopy of slash pine and scattered sweet bay and pond cypress. The shrub strata includes black titi and large gallberry and there is no groundcover due to the dense canopy, sub canopy, and shrub strata. This ecotone is less fire suppressed than the ecotone surrounding pond 5 and has a more diverse groundcover including white topped pitcher plants, club moss, beaksedge, yellow-eye grass, red root, and wiregrass.

Surrounding Upland

A portion of the upland is comprised of pasture and the remainder is planted in slash pine. The shrub layer is fire suppressed and dominated by gallberry, large gallberry, and wax myrtle.

Habitat Score

Pond (P) 1 0-3

Ecotone (E) 2 0-3

Upland (U) 0 0-3

Metapopulation? (*)

TOTAL SCORE 3 0-9 (*)

RANK Low



Pond & Flow Channel



Ecotone



Upland

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 7 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Basin Swamp
Soil: Pond/ECOTONE Rains Fine Sandy Loam Surrounding Land Troup Loamy Sand, Dothan Fine Sandy Loam, Bonifay Loamy Sand Size: Pond/ECOTONE 3.43 acres Site Rank: Low

Pond –

Overstory: The canopy is dominated by pond cypress and black gum.

Midstory: The midstory is dominated by black gum and myrtle leaf holly; however, it is relatively open.

Groundcover: There is little to no groundcover and it appears that the hydrology has been altered due to fire suppressed vegetation and pine plantation.

Ecotone

The ecotone is comprised of a seepage slope with a slash pine and pond cypress canopy with a dense, fire suppressed understory and shrub strata including black titi, sweet pepperbush, gallberry, and large gallberry.

Surrounding Upland

The surrounding uplands are comprised of sandhills that are planted with slash pine and sand pine.

Habitat Score

Pond (P) 2 0-3
Ecotone (E) 1 0-3
Upland (U) 0 0-3
Metapopulation? (*)
TOTAL SCORE 3 0-9 (*)
RANK Low



Pond



Ecotone

Flatwoods Salamander Habitat Description and Evaluation Form

Project: SR 87 Connector Quad: Harold SW Qtr: NW
Site Field ID # Pond 8 Photo _____
Site Location: T 2N R 27W S 19 Natural Community Type: Ditched wetland
Soil: Pond/ECOTONE Rains Fine Sandy Loam Surrounding Land Troup Loamy Sand, Dothan Fine Sandy Loam, Bonifay Loamy Sand Size: Pond/ECOTONE 3.43 acres Site Rank: Low

Pond –

This wetland has been cleared and degraded overtime and is currently dredged out, ditched, and is connected across a road by a culvert. There is no vegetation present and the water quality appears to be poor from adjacent dirt road runoff.

Ecotone

The ecotone is a fire suppressed wet prairie / seepage slope wetland.

Surrounding Upland

The surrounding uplands include residential development and planted pine.

Habitat Score

Pond (P) 0 0-3
Ecotone (E) 0 0-3
Upland (U) 0 0-3
Metapopulation? (*)
TOTAL SCORE 0 0-9 (*)
RANK Low



Pond



Ecotone



Appendix G: Essential Fish Habitat Memo



MEMORANDUM

To: John Flora
From: Daniel Van Nostrand
Date: 4/13/12

Re: Essential Fish Habitat
SR 87 Connector PD&E Study

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) on actions that are authorized, funded, or undertaken that may adversely affect Essential Fish Habitat (EFH). EFH evaluations are also required as a component of the PD&E process in accordance with chapter 3.17 of the PD&E Manual, Part 2.

EFH is defined as waters and substrate necessary for fishery species to spawn, breed, forage, and grow to maturity. An adverse affect would be any impact that reduces the quality and/or quantity of EFH. Consultation for EFH is triggered when an action may adversely affect EFH; otherwise, no consultation is required. A review of NMFS's EFH Mapper (http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx) indicates that EFH is not present in the project area. The nearest mapped EFH is located approximately 3.1 miles downstream from the project area and corresponds with the approximate limits of tidal influence.

Any potential downstream impacts would be minimized through the use of bridges and erosion control measures. In summary, the SR 87 project would not have an adverse affect on EFH.

Essential Fish Habitat Mapper

NOAA Fisheries

EFH View Tool

☒ zoom to selected region

zoom to extents -->

Data Query Tool

-- Location Query --

Link to Text Description

For links to all text descriptions:
Open Data Inventory -->

Home Contact
Google Maps Terms of Use



Coastal Migratory Pelagics

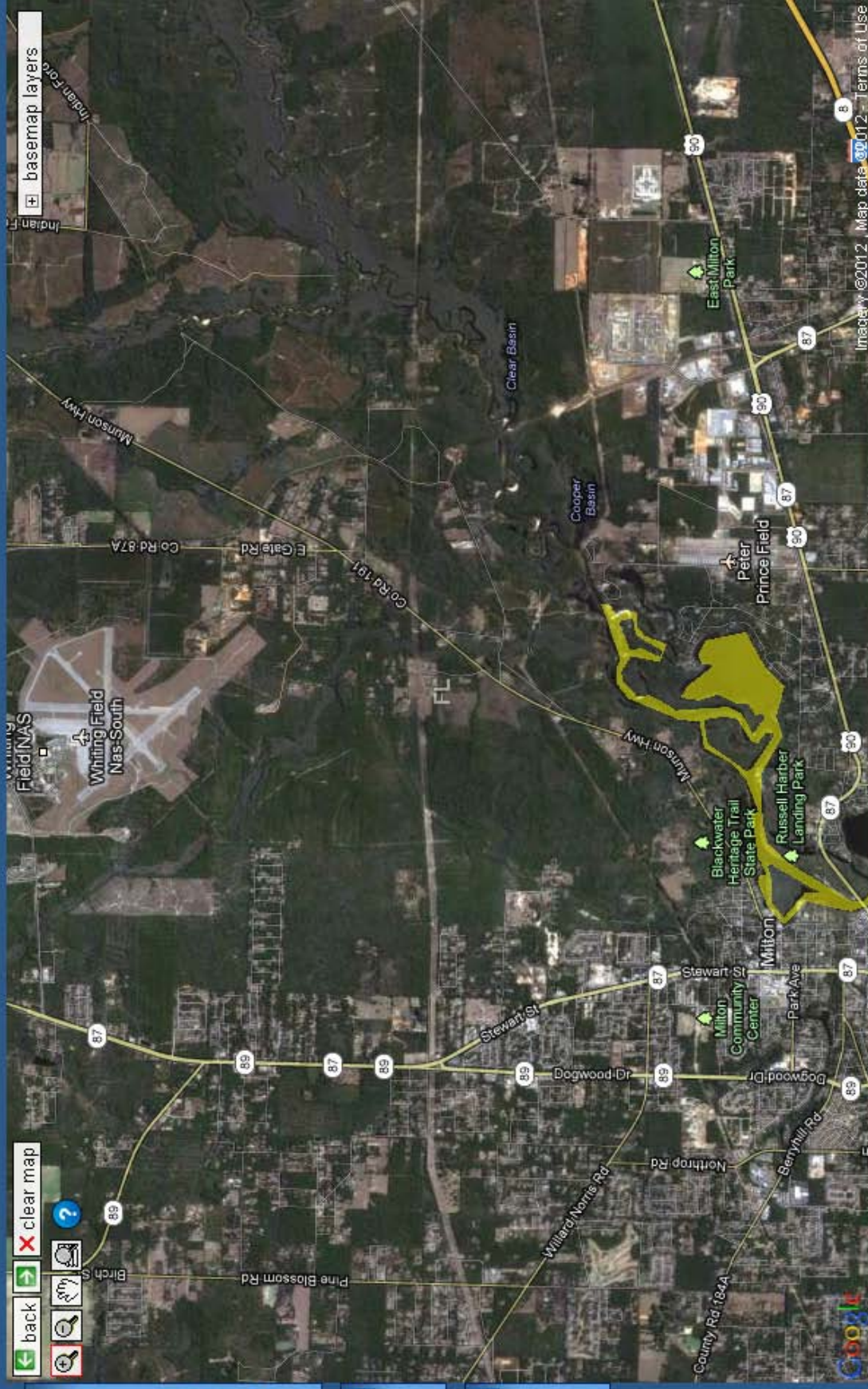
Legend

☒ All Lifestages

Mapper
Updates

-- Location Query --

-- Data Inventory --



Imagery ©2012 Map data ©2012 Terms of Use



Appendix H: USFWS Correspondence & Meeting Minutes

From: John Flora <JFlora@metriceng.com>
Sent: Wednesday, May 16, 2012 9:18 AM
To: Dan Van Nostrand

Hi Peggy -

Thanks for sharing the draft ESBAR early for my comments. I'm glad to see the corridor has shifted to the south within the reticulated flatwoods salamander critical habitat unit (RFS-2A), and that FDOT proposes to bridge the area. Those changes go a long way toward reducing direct and indirect effects to the unit. Similarly, bridging the Blackwater River floodplain-to-floodplain and restricting in-water work to outside the Gulf sturgeon migratory period significantly reduces impacts from the project on sturgeon and their critical habitat (Unit 4-Yellow River System). In reading through the ESBAR I do have a few comments.

Reticulated flatwoods salamander

1. The analysis for the reticulated flatwoods salamander is incomplete. It should look at effects both to the species and its habitat, as well as to the critical habitat unit. To fully evaluate the effects to the species, the HDR model should be used for the length of the corridor to determine if potential habitat is present. We told the consultant this both during the field review and by email (attached). Especially this close to a known pond, other potential ponds may be present.
2. Even though bridging and the new alignment location greatly reduce effects to unit RFS-2A, there still will be impacts to the habitat within the unit. Some of these effects may include, but aren't limited to: direct habitat loss/degradation from the placement of bridge supports, temporary construction area, shading, altering water quality and quantity; and indirect effects such as reduced potential for future land management activities such as prescribed burning and increased human access. An effect determination of "may affect, not likely to adversely affect" (NLAA) is reached when effects on listed species are insignificant (not measurable) and discountable (extremely unlikely to occur). As long as impacts are occurring to habitat within the unit, we recommend initiating formal consultation to assure that FDOT and FHWA are covered for potential incidental take of the flatwoods salamander. Formal consultation will also look at the potential for your action to adversely modify the critical habitat unit - or determine whether there is a loss of the unit's conservation function.

Gulf sturgeon

1. The ESBAR includes a commitment to avoid in-water work from April through October. This commitment is a key factor toward reaching your NLAA effect determination. In order to assure that no fish are in the area during in-water construction activities, we recommend extending this window to March through November. Currently our office lacks the data necessary to more narrowly define when fish move through the area proposed for construction. In the future, our office may be able to place receivers near your proposed project area to better define when fish are present and your commitment could then be revised as appropriate.
2. In addition to commitments to limit in-water work to outside the sturgeon's migratory window and following sturgeon construction guidelines, we recommend adding the following commitments to help support your NLAA determination for Gulf sturgeon and its designated critical habitat. Some of these are discussed in the ESBAR but no commitments were provided.
 - Placement of piles in the river should be avoided if possible. If placement in the river is unavoidable, piles should be minimized to the extent practicable.

- Innovative, environmentally sensitive construction techniques should be used such as top-down construction.
- If siltation barriers are used within the river, they should be made of material in which a sturgeon cannot become entangled, be properly secured, and be regularly monitored to avoid entrapment. Barriers should not block entry to or exit from designated critical habitat.
- If a sturgeon is seen within 100 yards of the active daily construction operation or vessel movement, all appropriate precautions should be implemented to ensure its protection. These precautions should include cessation of operation of any moving equipment closer than 50 feet of a sturgeon. Operation of any mechanical construction equipment should cease immediately if a sturgeon is seen within a 50-foot radius of the equipment. Activities should not resume until the protected species has departed the project area of its own volition.
- Stormwater should be collected and conveyed off of the bridge to treatment ponds to eliminate run off during construction and operation.
- Equipment should be staged and stored in areas without environmentally sensitive habitats, including the docking, removal, or storage of boats during periods of inactivity.
- Native vegetation should be planted immediately following completion of construction and erosion control measures should be removed only after vegetation has become fully established.
- All applicable Best Management Practices (BMPs) should be implemented to control erosion, sedimentation, and turbidity. An erosion control plan should be submitted to the Service for approval prior to the start of construction.

3. Provided that the above recommendations are met, the Service could concur with your determination of NLAA for the Gulf sturgeon. However, if FDOT is unable to complete all in-water work outside of the peak migratory periods for the sturgeon, or if FDOT wants to plan in advance for potential project delays that may result in a need to work during the migratory period, we recommend initiating formal consultation. Formal consultation includes reasonable and prudent measures with terms and conditions that could reduce the impacts of the project should work take place while fish are likely to be present.

West Indian manatee

1. As the project is located in waters accessible to the manatee, we recommend including appropriate Standard Manatee Construction Conditions for this project. Note that measures c and f are not required in Santa Rosa County.

Rare plants

The ESBAR indicated that two plants considered "at-risk" by the Service were identified during surveys in the project corridor: the panhandle lily (*Lilium iridollae*) and small-flower meadow beauty (*Rhexia parviflora*). A list of at-risk plants is attached for your information. The Service received a formal request to list these species and our 90-day finding indicated that listing may be warranted. At present we are in the process of assessing the status of these species. We would greatly appreciate it if you could provide further information such as the number of plants and their GPS locations to assist with our status assessment. While not currently protected under the Endangered Species Act, conserving these species now may prevent the need to list them in the future. We recommend avoiding potential impacts to these plants to the extent practicable. It would also assist our review of the ESBAR if the occurrences of these species used an alternate symbol to clearly identify them. Some colors in the legend are difficult to differentiate.

Everything else looks good! Thanks again for the opportunity to provide comments.

(See attached file: 20121209_em_Mittiga to Van Nostrand, HDR model for potential habitat SR 87.pdf)(See attached file: 2011_StandardConditionsForIn-waterWork.pdf)(See attached file: Species at risk.docx)

Mary A. Mittiga
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City, Florida 32405
Tel: (850) 769-0552 Ext. 236
Fax: (850) 763-2177
Email: Mary_Mittiga@fws.gov
Website: <http://www.fws.gov/panamacity/>
<peggy.kelley@dot.myflorida.com>

John Flora, R.A., AICP
Transportation Planning/PD&E Manager
METRIC ENGINEERING, INC.
Lake Mary, FL 32746

Phone: 407.644.1898
Cell: 407.952.9458
Fax: 407.644.1921
www.METRICENG.com

Attention: The information contained in this E-mail message is privileged and confidential information intended only for the use of the individual(s) named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copy of this communication is strictly prohibited. If you have received this communication in error, please contact the sender by reply E-mail and destroy all copies of the original message. Thank you.



Mary Mittiga/R4/FWS/DOI

07/12/2012 01:59 PM

To peggy.kelley@dot.myflorida.com

cc Harold Mitchell/R4/FWS/DOI@FWS, Karen
Herrington/R4/FWS/DOI@FWS

bcc

Subject Fw: SR 87 Connector Draft ESBAR

Hi Peggy -

I've read through the desktop analysis for the reticulated flatwoods salamander. That looks good - and can be included as an attachment to the ESBAR. Again, the shift of the alignment to the south and use of bridging are very effective in reducing the scope of impact. However, I still have some unanswered questions from my previous email below. The ESBAR should be updated to address these issues:

Reticulated flatwoods salamander

1. The effect determination for the reticulated flatwoods salamander should be re-evaluated. We recommend formal consultation since at this time it appears that the corridor will be impacting habitat (Pond 2 as well as upland and dispersal habitat) within the critical habitat unit RFS-2A.

Gulf sturgeon

1. Can the in-water work restrictions be extended as suggested below (see below Gulf sturgeon #1)?
2. Can the additional commitments be made (see below Gulf sturgeon #2)?

If the timing restrictions can't be met, we recommend initiating formal consultation for Gulf sturgeon.

Rare Plants

1. Can additional information be provided on the number of plants and their locations for the two species of at-risk plants identified in the ESBAR (see below)?
2. Can impacts to these plants be avoided to the extent practicable?

I'm available to meet with you if you'd like to discuss further! Thanks, Mary

Mary A. Mittiga
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City, Florida 32405
Tel: (850) 769-0552 Ext. 236
Fax: (850) 763-2177
Email: Mary_Mittiga@fws.gov
Website: <http://www.fws.gov/panamacity/>

----- Forwarded by Mary Mittiga/R4/FWS/DOI on 07/11/2012 03:01 PM -----



Mary Mittiga/R4/FWS/DOI

05/16/2012 06:30 AM

To <peggy.kelley@dot.myflorida.com>

cc

Subject Re: SR 87 Connector Draft ESBAR

Hi Peggy -

Thanks for sharing the draft ESBAR early for my comments. I'm glad to see the corridor has shifted to the south within the reticulated flatwoods salamander critical habitat unit (RFS-2A), and that FDOT proposes to bridge the area. Those changes go a long way toward reducing direct and indirect effects to the unit. Similarly, bridging the Blackwater River floodplain-to-floodplain and restricting in-water work to outside the

SR 87 Connector PD&E



Meeting Minutes

August 27, 2012

8:00 AM – 9:00 AM (CST)

Meeting to discuss the species considerations related to the SR 87 Connector PD&E, previous USFWS comments, and Desktop Analysis Results

Meeting Facilitator: John Flora (Metric Engineering) & Daniel Van Nostrand (ERC)

Attendees: Joe Sullivan (FHWA), Peggy Kelley (FDOT), Mary Mitiga (USFWS), Harold Mitchell (USFWS), Karen Herrington (USFWS), John Flora (Metric), Jessica Bloomfield (Metric), Nicole Mauntler (Metric), and Daniel Van Nostrand (ERC)

I. May 16, 2012 ESBAR Comment Email

- Dan provide brief discussion of email comments to recap the determinations and the status of USFWS's opinions related to Gulf sturgeon and reticulated flatwoods salamander
- Peggy stated that FDOT was not in agreement with the entire email and that more discussion was needed especially related to the Gulf sturgeon commitments.
- Mary stated that "in-water" work was only referring to pile driving not just having a barge in the water.
- Peggy asked if we could follow similar timelines as the Yellow River consultation.
- Mary stated that the specifics related to this project would have to be discussed.
- Harold described that Gulf sturgeon impacts would have to be assessed related to the Primary Constituent Elements of the species and their critical habitat.

II. Desktop Analysis, Field Survey, and Project Modifications

- Dan described the reticulated flatwoods salamander desktop analysis, and that the analysis resulted in 8 potential pond areas. Only the known pond area within the critical habitat had decent habitat quality and appropriate habitat type to support flatwoods salamanders.
- Mary agreed that the majority of the habitat was not suitable and said the desktop analysis looked good.

- Dan described that the bridges had been lengthened, that the stormwater ponds were all located outside of the critical habitat unit, and that all stormwater would be collected to minimize impacts. He asked if formal consultation for RFS was still necessary.
- Mary stated that those were all good avoidance and minimization measures but that the only time formal consultation is not required is when they can demonstrate that impacts to the species or habitat will be insignificant or non-detectable. As such, formal consultation would be required for the flatwoods salamander.

III. Potential Formal Consultation

Gulf sturgeon

- Mary stated that consultation would be necessary if FDOT cannot agree to the March through November construction condition. If FDOT wants to work outside the March through November guideline, then they could discuss with FHWA initiating formal consultation.
- Karen stated that in water work is only the installation of pilings and that work on the piling caps and the decking would not constitute in water work. Working outside of the restricted window would constitute an insignificant affect.
- Jessica stated that there would most likely be approximately 18-20 pilings in the river.
- Peggy stated that FDOT cannot commit to the construction window and wants to coordinate with FDOT construction and structure folks.
- Joe stated that consultation takes 135 days complete and asked Mary and Karen what the main impact was to the sturgeon.
- Mary stated that it could affect the sturgeon's movement up the river.
- Joe stated that there would be substantial open area north and south of the piling installation for the sturgeon to move during construction.
- Karen indicated that the other impacts include noise, turbidity, vibration, and not just the location of the construction.
- Joe asked for literature related to the effects of vibration on fish migration and for Mary to provide the requested literature.
- John asked what kind of information USFWS would be looking for in the Biological Assessment.
- Mary stated that they would need to know information about the bridge design, the scope of the impact, the construction methodology, the timeline, and the BMPs that are proposed.
- John – what kind of mitigation would be required?
- Karen stated that there could be stream restoration or protection depending on the timing. (Peggy stated that the project would let in approx. 5 years) Since the project is starting in about 5 years, we could start a study now by installing a receiver at the bridge location. The

receiver would give us more information about the tagged sturgeon and how far upstream they go and determine if they use this portion of the river or not. If we find they do not, then formal consultation may not be necessary.

- Karen stated as an alternative that formal consultation could be conducted at the time of project letting.
- Peggy asked Mary if the standard sturgeon guidelines were no longer good since the work timeframes are always being shifted to a longer time period than the standard guidance.
- Karen stated that USFWS has worked on revised guidelines in FDOT District 2, but that it's hard to have a one size fits all approach since they do not know a ton about the species and their populations.
- Harold clarified that the USFWS was not stipulating the work timeframes and that if the FDOT wants coverage for a potential species impact without working inside the specified timeframes they should initiate formal consultation. If FDOT prefers to work outside of the timeframe, then they do not have to do formal.
- Joe asked how long the "take" provided in the formal consult conclusion (BO) is 'good for' and if there is an expiration
- Harold stated that it would depend on the type of take (whether direct individual or harassment) and that the language in the final BO specifying the take could be worded to specify a timeframe.
- Peggy asked if the timeline could be extended.
- Mary clarified that there can be flexibility in the take if we built it in and could include language that discusses re-evaluation if the project does not occur within a certain timeframe.
- Joe asked if there was a set structure for data collection and what was needed for the BA and for the USFWS to approve a take.
- Harold stated that a BA is needed to describe the possible impact.
- Karen clarified that information about the # of individuals with the potential for impact, the project timing, etc. is needed, but that there is no specific surveys that are required.
- Peggy asked if the information and timing from the Yellow River BA could be used for this project.
- Mary stated that the window is more flexible with a formal consultation.

Reticulated Flatwoods Salamander

- Peggy clarified that the impacts to salamander are because of habitat impacts in the critical habitat unit.
- Harold stated that he understands that we have pilings in the critical habitat and that he is recognizing the avoidance and minimization measures (we are getting credit for it). All critical habitat is assumed to be occupied since they err on the side of the species according to Congress. The fact that the project is FHWA funded raises the bar for the

Endangered Species Act process. The impact within the critical habitat must evaluate the species PCE's especially hydrology in this case. The formal consultation is a type of "insurance policy" from the USFWS in case of any impact or perceived impact from a challenge from Natural Resources Defense Council or other groups. For instance, pond RFS2-B was occupied in 1993, surveyed every 2-5 years without finding any RFS and then they just found RFS in the most recent survey 17 years later. For this reason they err on the cautionary side and advise FDOT to conduct formal consultation.

- Dan asked what types of mitigation measures they would consider for the RFS impacts.
- Harold stated that if the pond could be improved with prescribed fire, hydrological monitoring, and/or private land acquisition. (Peggy stated that may not be feasible due to the landowners that own the property and asked for additional suggestions). Harold mentioned that RFS2-B in the Yellow River Management area, which is managed by DOF, could be improved and considered off-site mitigation. Harold stated that half of the critical habitat ponds are on or partially on public property.
- Peggy stated she would discuss these options with Joy Giddens.

IV. General Discussion

Related to the sturgeon, Peggy needs to talk to the structures folks to see if the timelines are feasible.

Peggy asked how much take will USFWS allow – how many individuals and how is it determined.

Harold stated that they need a means for estimation and in most cases they estimate a species number / acre/ year and that they would need to evaluate the estimation method and # of individuals as part of their BO.

John asked about the procedure and general timeframe.

Mary said they need the BA.

Dan stated that he started working on the BA following the FHWA National BA template.

Harold and Mary agree that if we have all the information in the national template that we should be ok.

Peggy asked about the cost of the sturgeon tag detectors.

Karen stated that they are approximately \$1,200 / detector, that USFWS would install them, monitor them, and download data. They would also commit to sharing the data with FDOT for reporting.

Peggy stated that she would coordinate internally and that we would get back with the USFWS regarding the internal discussions.

Mary will resend her emails to Peggy so that Joe can take a look and we can decide how to move forward.

No other questions or comments and meeting adjourned at 9:20am (CST)